# XPS-100

## System Testing Guide

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**SUBJECT**

Testing Procedures for the XPS-100 System

The following notice is provided in accordance with the United States Federal Communications Commission's (FCC) regulations.

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# Section I

# INTRODUCTION

## STRUCTURE OF THE GUIDE

This guide consists of six sections:

- *"Introduction"*, which explains how to use the guide.

- *"Unit Tests"*, which helps you to identify the faulty Customer Replaceable Unit, or CRU).

- *"Unit Replacement"*, which tells you how to replace each CRU.

- *"Unit Return"*, which tells you how to prepare a faulty unit for its return to the nearest "Service Center".

- *"Calling for Help"*, which tells you how to contact the distributor.

- *"Cover Removal/Replacement"*, which contains information that you should consult while using the first five sections.

Most sections contain procedures for performing hardware tests on various system units. Each procedure is made up of a number of different operations.

# NOTES

- In this guide, variable values are indicated by three consecutive dots (...).

- In this guide, the square brackets indicate a range of values.

- The system contains units which, if faulty, can be replaced by the user. The following figure shows every Customer Replaceable Unit, or CRU.

- The messages that are displayed during execution of the tests are marked with a series of hyphens (- - -) if no response is necessary, and do not appear in the documentation.

# CENTRAL UNIT

AC BOX

POWERS

CONTROL PANEL

DISKETTE UNIT

STREAMER
UNIT

DISK UNITS

FAN

| 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | MEM 3 | MEM 2 | MEM 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EX0 | DCS0 | VME | VME | SPX3 | SPX2 | SPX1 | SPX0 | SCX | CHX0 | CPX0 | SE2 | SE2 | SE2 |
| . | o | o | o | o | o | o | o | | | | o | o | o |
| TER | DCE0 | SP1 | SP1 | LP03 | LP02 | LP01 | LP00 | | | | SM4 | SM4 | SM4 |
| | | o | o | | | | | | | | o | o | o |
| | | SP2 | SP2 | | | | | | | | SM8 | SM8 | SM8 |
| | | | | | | | | | | | o | o | o |
| | | | | | | | | | | | MF4 | MF4 | MF4 |
| | | | | | | | | | | | o | o | o |
| | | | | | | | | | | | MF8 | MF8 | MF8 |

# EXPANSION UNIT



AC BOX
POWERS
DISK UNITS
FAN

| 1 MEM | 2 MEM | 3 MEM | 1 | 2 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|-------|-------|-------|---|---|---|---|---|---|---|---|----|----|
| SE2 | SE2 | SE2 | CPX1 | CHX1 | SPX4 | SPX5 | SPX6 | SPX7 | VME | VME | DCS1 | |
| o | o | o | | | o | o | o | o | | | o | |
| SM4 | SM4 | SM4 | | | LP04 | LP05 | LP06 | LP07 | SP1 | SP1 | DCE1 | |
| o | o | o | | | | | | | o | o | | |
| SM8 | SM8 | SM8 | | | | | | | SP2 | SP2 | | |
| o | o | o | | | | | | | | | | |
| MF4 | MF4 | MF4 | | | | | | | | | | |
| o | o | o | | | | | | | | | | |
| MF8 | MF8 | MF8 | | | | | | | | | | |

## SYSTEM TESTING

The system testing process is performed in three distinct phases. Each test has a different testing level. The three phases are:

1. *START*, the resident test. During this phase the following units are checked to ensure that they are working correctly:

    - CPU Units
    - CHX Units
    - SPX Units
    - LPX Units
    - Memory Units
    - Disk Controller Units

    This test is automatically performed at every system initialization. It requires no other operation. If faulty units are found, the control panel displays the values identifying these units.

2. *STAL*, the stand-alone test, i.e. without the operating system. During this phase the following units are checked to ensure that they are working correctly:

    - CPX Units
    - CHX Units
    - SCX Units
    - Memory Units
    - SPX Units
    - LPX Units
    - Disk Controller Units
    - Disk Units
    - Diskette Unit
    - Streamer Unit

    The tests are performed using the DIAGX2 system test diskette supplied with the system.

3.  *DIAG*, the test controlled by the operating system. During this phase, the following units are checked to ensure that they are working correctly:

- CPX Units
- CHX Units
- SCX Unit
- Memory Units
- SPX Units
- LPX Units
- Disk Controller Units
- Disk Units
- Diskette Unit
- Streamer Unit
- Tape Units
- VME BUS Units
- Printers
- Workstations
- The kernel of the operating system.

The tests are performed by initializing the system in normal mode from disk, or as a continuation of the *STAL* test.

## NOTES:

- Check that the disk units have been formatted and that no bad blocks have been used.

- The time taken during the streamer unit tests depends upon the number of blocks used.

- The break is generated by different combinations of keys, according to the type of terminal and keyboard in use. For further information, refer to the manual for the terminal and keyboard being used.

  For VTU004X and VTU005X type terminals, the break is generated by the <Control> <8> sequence.

  For VIP72XX type terminals, the break is generated by the <Shift> <Break> sequence.

- The system console terminal must be configured as follows:

  UNIX = 7 bit parity even
        1 stop bit
        9600 baud

  PICK = 8 bit no parity
        2 stop bits
        9600 baud


### WARNING

*The system contains switches used to automatically interrupt the power supply to the system if any of the panels are removed. To prevent the system powering off unintentionally, the user is thus advised not to remove any of the panels while the system is powered on.*

# UNIT TEST

## POWERING THE SYSTEM ON

1. Make sure that the main power switch is set to *"I"* (*ON*).

2. Set the main switch at the back of the central and expansion unit to *"I"*.

3. Is the *AC PRESENT* indicator on the control panel lit?

| YES | NO |
|-----|-----|
| Continue. | Go to *"Procedure E"*, later in this section. |

4. If you are already using the system, perform the shutdown procedure described in the *"System Operations Guide"*.

5. Press the *POWER ON* and *RESET* buttons on the control panel. Is the *DC ON* indicator on the control panel lit?

| YES | NO |
|-----|-----|
| Continue. | Go to *"Procedure E"*, later in this section. |

# LOAD FROM DISKETTE

1.  Power on the console workstation and wait for the cursor to appear on the screen.

2.  Insert the diskette labeled *DIAGX2*.

3.  Press the *RESET* button while observing the *STATUS* display where the characters *AA* and *55* should appear alternately.

    Do *AA* and *55* appear?

| YES | NO |
|---|---|
| Continue. | Go to *"Procedure A"*, later in this section. |

4.  Look at the console.

    Does the following message appear within 30 seconds?

| | |
|---|---|
| ENTRO UN MINUTO<br>INTRODURRE<br>abcd<br>E PREMERE "RETURN" | WITHIN ONE MINUTE ENTER<br><br>dcba<br>AND PRESS "RETURN" KEY |

| YES | NO |
|---|---|
| Continue. | Go to *"Procedure B"*, later in this section. |

5.  Enter *dcba* and press *RETURN*.

6.  Look at the console.

The following messages should be displayed:

```
****************************************************************

              STAL - DIAGNOSTIC SYSTEM
              REVISION .-.. ..........
     (c) COPYRIGHT Honeywell Bull Italia 1988

****************************************************************

     Current date is: .......... (y/n)?
```

If the date is correct, enter *y*. Otherwise, enter *n:* the following message is displayed:

```
Enter date (YYMMDDHHMMWX)
YY=year MM=month DD=day HH=hour MM=min. W=d/week
X=(0=am 1=pm)
```

Enter the date and press *RETURN*.

```
SELECT:

a    Full system test
     (test performed from both diskette and disk)
b    Automatic system test
     (test performed from diskette only)
c    Test of Unit CPU
d    Test of Unit SCX
e    Test of Unit Memory
f    Test of Unit CHX
g    Test of Unit Disk
h    Test of Unit Diskette
i    Test of Unit Streamer
j    Test of Unit SPX-LPX
```

Were the above messages displayed?

## NO

If one of these three messages is
displayed:

```
*ERR .... : RISPOSTA NON RICEVUTA ENTRO 1 MINUTO
*ERR .... : REPLY NOT RECEIVED WITHIN 1 MINUTE
```

or

```
*ERR .... : RICEVUTO ...
*ERR .... : RECEIVED ...
```

or

```
*ERR: CAPITAL LETTERS RECEIVED...
```

Re-enter *dcba* and watch the console. Is the select screen displayed?

## YES

Continue.

## YES

Continue.

## NO

Go to *Procedure C*, later in this
section.

Choose the function you require by entering the appropriate letter, and continue.

```
SELECT:

a    Full system test
     (test performed from both diskette and disk)
b    Automatic system test
     (test performed from diskette only)
c    Test of Unit CPU
d    Test of Unit SCX
e    Test of Unit Memory
f    Test of Unit CHX
g    Test of Unit Disk
h    Test of Unit Diskette
i    Test of Unit Streamer
j    Test of Unit SPX-LPX
```

Go to the section identified by the letter you entered.

## NOTES:

- For the *"Full system test"*, selection a, *"Automatic system test"*, selection b, and *"Test of Unit Streamer"*, selection i, if a streamer unit is installed, a cartridge which does not contain any useful information must be inserted.

- If during the run of tests the message:

  ```
  CPUX TRAP: ...
  ```

  is displayed on the console, go to *"Procedure A - point 2"*, later in this section.

- If you want to come out of the *STAL* testing phase, remove the diskette and proceed with normal work.

## a. Full System Test

The following system configuration table will be displayed on the screen:

```
******************************************************************

System configuration: ( (*) = Initializing Disk)

MEMORY                          : ... Mb (...+...)

CENTRAL HW                      : SCX0 CPU0 ...

COMMUNICATION                   : ...
                                :

NETWORKING                      : ...

DISK/TAPE CONTROLLER            : ...

DISK DEVICE                     : ...
                                :

TAPE DEVICE                     : ...
```

Press **RETURN** key to continue

where:

(...+...)    is the capacity of the memory boards (first cabinet + additional cabinet)

...    will take the value of the connected units. These values are shown in Table F on later in this section.

Does the configuration displayed on the screen match the effective system configuration?

<table>
<tr><td>YES</td><td>NO</td></tr>
<tr><td>Press *RETURN*.</td><td>Go to *Procedure D*, later in this section.</td></tr>
</table>

Are a series of messages displayed referring to the tests in progress, including those below?

```
    Test of Unit CPU           (about 2 minutes)
    - - -
    - - -
    Test of Unit SCX           (about 2 minutes)
    - - -
    - - -
    Test of Unit Memory        (about 1 minute for every
                               Megabyte)
    - - -
    - - -
(*) Test of Unit CHX           (about 1 minute)
    - - -
    - - -
    Test of Unit Disk          (about 9 minutes for each
                               disk)
    - - -
    - - -
    Test of Unit Diskette      (about 3 minutes)
    - - -
    - - -
(*) Test of Unit Streamer      (about 3 minutes)
    - - -
    - - -
    Test of Unit SPX           (about 10 seconds)
    - - -
    - - -
(*) Test of Unit LPX           (about 1 minute)
    - - -
    - - -
```

(*) This message is displayed only if the system is supplied with the unit indicated.

Is the following message displayed?

```
*******************************************************************

               STAL o DIAGNOSTIC SYSTEM
               REVISION .-.. ..........
     (c) COPYRIGHT Honeywell Bull Italia 1988

*******************************************************************
```

SYSTEM TEST FROM DISKETTE TERMINATED

Are these messages followed, after a few seconds, by the following messages?

```
.
Start of System Boot Phase
...
```

|              NO              |              YES              |
| ---------------------------- | ----------------------------- |
| Is the following message displayed? | Go to *"Run from Disk"*, later in this section. |

```
          *ERR .... : CRU= ...
```

|              NO              |              YES              |
| ---------------------------- | ----------------------------- |
| Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instructions to replace the CRU related to the last Unit Test Message displayed on the console | Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instrutions to replace the CRU indicated in the message. |

## b. Automatic System Test

The following system configuration table will be displayed on the screen:

```
*****************************************************

System configuration: ( (*) = Initializing Disk)

MEMORY                        : ... Mb (...+...)

CENTRAL HW                    : SCX0 CPU0 ...

COMMUNICATION                 : ...
                              :

NETWORKING                    : ...

DISK/TAPE CONTROLLER          : ...

DISK DEVICE                   : ...
                              :

TAPE DEVICE                   : ...

Press RETURN key to continue
```

where:

(...+...)    is the capacity of the memory boards (first cabinet + additional cabinet)

...          will take the value of the connected units. These values are shown in *Table F* later in this section.

Does the configuration displayed on the screen match the effective system configuration?

|               YES               |               NO               |
| :-----------------------------: | :----------------------------: |

Press **RETURN**.                            Go to **Procedure D**, later in this section.

Is a series of messages displayed referring to the tests in progress, including those below?

```
        Test of Unit CPU       (about 2 minutes)
        - - -
        - - -
        Test of Unit SCX       (about 2 minutes)
        - - -
        - - -
        Test of Unit Memory    (about 1 minute for every
                               Megabyte)
        - - -
        - - -
(*)     Test of Unit CHX       (about 1 minute)
        - - -
        - - -
        Test of Unit Disk      (about 9 minutes for each
                               disk)
        - - -
        - - -
        T e s t   o f   U n i t (about 3 minutes)
        Diskette
        - - -
        - - -
(*)     T e s t   o f   U n i t (about 3 minutes)
        Streamer
        - - -
        - - -
        Test of Unit SPX       (about 10 minutes)
        - - -
        - - -
(*)     Test of Unit LPX       (about 1 minutes)
        - - -
        - - -
```

(\*) This message is displayed only if the system is supplied with the unit indicated.

SELECT:

a   Full system test
    (test performed from both diskette and disk)
b   Automatic system test
    (test performed from diskette only)
c   Test of Unit CPU
d   Test of Unit SCX
e   Test of Unit Memory
f   Test of Unit CHX
g   Test of Unit Disk
h   Test of Unit Diskette
i   Test of Unit Streamer
j   Test of Unit SPX-LPX

| NO | YES |
|---|---|
| Continue. | Select another operation or go to *"Load from Disk"*, later in this section. |

Is the following message displayed on the screen?

$$*ERR \dots : CRU = \dots$$

| NO | YES |
|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instructions to replace the CRU indicated by the last Unit Test Message on the console. | Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instructions to replace the CRU indicated in the message. |

## c.  Test of Unit CPU

The following message and the test evolution mask are displayed:

```
Test of Unit CPU               (about 2 minutes)

                 Test Evolution Mask
```

The test recycles automatically.

Is the following message displayed?

```
            *ERR .... : CRU = UNIT CPUx
```

where  x  is 0 or 1.

## YES

Go to the begining of *"Unit Replacement"*, Section 3.  Follow the instructions to replace the CPUx unit. See *"Replacing a Board"*.

## NO

Press < *B R E A K* > or the corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to *"Load from Disk"*, later in this section.

## d.  Test of Unit SCX

The following message and the test evolution mask are displayed:

```
Test of Unit SCX        (about 2 minutes)

            Test Evolution Mask
```

The test recycles automatically.

Is the following message displayed?

```
    *ERR .... : CRU = SYSTEM CONTROLLER
```

| YES | NO |
|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the SCX Board (see *"Replacing a Board"*). | Press < B R E A K > or the corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to *"Load from Disk"*, later in this section. |

### e. Test of Unit Memory

The following message and the test evolution mask are displayed on the screen:

```
Test of Unit Memory    (about 1 minute for every
                       Megabyte)

               Test Evolution Mask
```

The test recycles automatically.

Is the following message displayed?

```
        *ERR .... : CRU= MEM #x MB = xx
```

where:

x    is 0 for the central unit and 1 for the additional unit.

xx   is the number of the megabyte of memory in which the error occurred.

## YES

The control panel indicates the number of the bad megabyte (0X = first megabyte, 1X = second megabyte, etc.) relative to the unit specified in the last message sent to the console. Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instructions to replace the memory expansion board having the identified megabyte (see *"Replacing a Board"*).

## NO

Press < B R E A K > or the corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to *"Load from Disk"*. later in this section.

## f. Test of Unit CHX

The following message and the test evolution mask are displayed on the screen:

```
Test of Unit CHX                        (about 1 minute)

                    Test Evolution Mask
```

The test recycles automatically.

Is the following message displayed?

```
            *ERR .... : CRU= . UNIT CHXx
```

where $x$ is 0 or 1.

### NO

Press **<BREAK>** or the corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to **"Load from Disk"**, later in this section.

### YES

Are two CHX boards installed in the system?

### YES

Go to **"Unit Replacement"**, Section 3, and follow the instructions for replacing the CHX unit relative to the last mesage that was displayed on the console.

### NO

Go to the beginning of **"Unit Replacement"**, Section 3. Follow the instructions to replace the CHX0 board (see **"Replacing a Board"**).

## g. Test of Unit Disk

The following message and the test evolution mask are displayed on the screen:

```
Test of Unit Disk          (about  9  minutes  for  each
                           disk)

                  Test Evolution Mask
```

The test recycles automatically.

Is the following message displayed?

```
            *ERR .... :  CRU = UNIT xxxx
```

### NO

Press <BREAK> or the corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to "Load from Disk", later in this section.

### YES

Is the CRU indicated in the message one of following?

```
DCS0  DCE0  ESD0  RSD0
DCS1  DCE1  ESD1  RSD1
```

### NO

The logical structure of the disk indicated in the message may be altered.

### YES

Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instructions to replace the board

indicated in the message (see
*"Replacing a board"*) .

Format the disk (see *"Formatting"* described in *"System Operations Guide"*).
Restore the disk with the saved copy and restart the test procedure from the
beginning. If the problem occurs again, go to *"Unit Replacement"*, Section 3,
and follow the instructions to replace the unit indicated in the error message.

## h.  Test of Unit Diskette

The following message and the test evolution mask are displayed on the screen:

```
Test of Unit Diskette                    (about 3 minutes)

               Test Evolution Mask
```

The test recycles automatically.

Is the following message displayed?

```
        *ERR .... : CRU = UNIT xxxx
```

where xxxx =     DISKETTE
                 DCS0
                 DCE0

| YES | NO |
|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the unit indicated in the message. | Press *<BREAK>* or the corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to *"Load from Disk"*, later in this section. |

## i. Test of Unit Streamer

The following message and the test evolution mask are displayed on the screen:

```
Test of Unit Streamer          ·            (about 3 minutes)

              Test Evolution Mask
```

The test recycles automatically. ·

Is the following message displayed?

```
         *ERR .... : CRU = UNIT STREAMER
```

## YES

Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructios to replace the streamer unit.

## NO

Press < *B R E A K* > or the corresponding key sequence to stop the test. The selection menu reappears. Select another operation from the list or go to *"Load from Disk"*, later in this section.

## j.   Test of Unit SPX

The following message and the test evolution mask are displayed:

```
Test of Unit SPX                        (about 10 seconds)

                Test Evolution Mask
```

The test recycles automatically.

Is the following message displayed?

```
            *ERR .... : CRU = UNIT SPX_x
```

where   x   is the number of the board.

| YES | NO |
|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the SPX board identified by  x  (see *"Replacing a Board"*). | Press **\<BREAK\>** o r  t h e corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to *"Load from Disk"*, later in this section. |

## j. Test of Unit LPX

The following message and the test evolution mask are displayed:

```
Test of Unit LPX                            (about 1 minute)

                  Test Evolution Mask
```

The test recycles automatically.
Is the following message displayed?

```
          *ERR .... : CRU = UNIT LPX_x
```

where  x  is the number of the board.

| YES | NO |
|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the LPX board identified by  x  (see *"Replacing a board"*). | Press **<BREAK>** or the corresponding key sequence to stop the test. The selection menu is redisplayed. Select another operation from the list or go to *"Load from Disk"*, later in this section. |

# LOAD FROM DISK

1. Power on the console workstation and wait for the cursor to be displayed.
2. Check that the diskette unit is empty. If there is a diskette present remove it.
3. Press the POWER ON and RESET buttons on the control panel. Look at the console.

Does the following message appear within one minute?

```
System startup Version 2.1
        . . .
```

## YES                                    NO

Continue.                                 Go to *"Procedure B"*, later in this
                                          section.

# RUN FROM DISK

1.  Perform the initialization phase which is described in the *"System Operations Guide"*.

    The following message will be displayed:

    ```
    Console login:
    ```

    Enter  root  and the password, if present.

    A lot of messages will be displayed on the system console followed by the prompt ( # ).

    **NOTES:**
    *   If you want to execute the *"Workstation test"*, it is necessary to login on the workstation you want to test.
    *   Before performing the *DIAG* tests on the *VME Lan board*, make sure that the *DIAGLAN* diskette has been installed.

    If you want to work with Double Density diskette insert the DDWORK diskette into the unit, while if you want to work with High Density diskette insert the HDWORK diskette into the unit and enter the commands:

    ```
    cd /usr/diag          Press RETURN
    diage                 Press RETURN
    ```

2.  The following message will be displayed:

    ```
    ****************************************************************

            Diagnostic System

            DIAG Rev. ...

    (c) COPYRIGHT Honeywell Bull Italia

    ****************************************************************
    ```

**followed by the test selection menu.**

```
    SELECT:

    a    System automatic test
    b    CPU test
    c    Disk test
    d    Floppy Unit test
    e    Printer test
    f    File System test
    g    Work Station test
    h    Read test of Disk/Floppy Unit
(*) s    Streamer  test
(*) t    Tape test
    v    VME BUS test
    q    End test

    Enter your selection:
```

(*)  "Streamer test" concerns the streamer unit on the system, whereas "Tape test" refers to the external tape units.

3.   Enter the letter corresponding to the function required. Go to the section below identified by the letter you entered.

## a. System automatic test

The following messages will be displayed:

```
The selection run such tests sequence:

+----------- DEFAULT TEST -----------+

FLOPPY unit test
DISK 0 test
CPU test
FILE SYSTEM test

Do you want to insert other tests?   (y/n)
```

If you press  y    the following messages will be displayed:

```
-   Do you want to insert test for the other disk?
    (y/n)

            1       Disk 1
            2       Disk 2
            3       Disk 3
            4       Disk 4
            5       Disk 5
            6       Disk 6

    Insert the selection:


-   Do you want to insert test for WORK STATION?
    (y/n)

    Do you want to insert test for work station of the
    first board?   (y/n)
```

If you press   y    the following messages will be displayed:

```
Digit the number of the station [0-b]
```

If you press   n    the following messages will be displayed:

```
[10-1b]:
[20-2b]:
[30-3b]:
[40-4b]:
[50-5b]:
[60-6b]:
[70-7b]:
[80-8b]:
[90-9b]:
[a0-ab]:
[b0-bb]:
```

Press the selection.  See "*Appendix A-Table C*" in the "System Operations Guide".

- Do you want to insert test for the PRINTER?   (y/n)

- Do you want to insert test for the STREAMER? (y/n)

- Do you want to insert test for the TAPE?   (y/n)

If you press   y    the following messages will be displayed:

```
0         Tape   0
1         Tape   1
2         Tape   2
3         Tape  3
```

Insert your selection:

Press the selection and then the following messages will be displayed:

```
0   Tape x   Low Density
1   Tape x   High Density
```

Select:

The following messages will be displayed after the previous questions and if you press  n   for the first question:

```
-TEST EXECUTION TIME 3 MINUTES

MONITOR: ... processes created

sgtst ------>
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

## YES

The test has not found any errors. If you are following these instructions because of a fault in the system, go to *"Calling for Help"*, Section 5. Otherwise continue.

## NO

Is one of the messages contained in *"Table D"* displayed ?

## YES
Go to *"Calling for Help"*, Section 5.

## NO

Go back to step 3 and make your selection suggested by the following considerations:

Is the message in either *Table A* or *B?*

NO                                          YES

Choose "e" or "g".                    Choose "c" or "d".

## b. CPU Test

The following messages are displayed:

```
TEST EXECUTION TIME 3 MINUTES

MONITOR: ...processes created

     sgtst ------>
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

# NO

Go to *"Calling for Help"*, Section 5.

# YES

No faults have been found in the part checked by the system. Select a different option.

## c. Disk test

The following messages are displayed on the screen:

```
Warning, it's not possible to launch this test if
you have another one disk mounted.

Insert:
s --> to exit
c --> to continue
```

Enter s to exit or c to continue.
Did you enter s ?

<table>
<tr><th>NO</th><th>YES</th></tr>
<tr><td>The following message is displayed on the screen:</td><td>The test selection screen is displayed again.</td></tr>
</table>

```
Select:

00        Disk 0        slice 0
01        Disk 0        slice 1
02        Disk 0        slice 2
10        Disk 1        slice 0
11        Disk 1        slice 1
12        Disk 1        slice 2
20        Disk 2        slice 0
21        Disk 2        slice 1
22        Disk 2        slice 2
30        Disk 3        slice 0
31        Disk 3        slice 1
32        Disk 3        slice 2
40        Disk 4        slice 0
41        Disk 4        slice 1
42        Disk 4        slice 2
50        Disk 5        slice 0
51        Disk 5        slice 1
52        Disk 5        slice 2

Enter your selection:
```

Enter the value corresponding to the disk/slice to be examined and press *RETURN.*

```
TEST EXECUTION TIME 3 MINUTES

MONITOR: ... processes created

sgtst ------>
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

## YES

No faults have been found in the part checked by the system. Select a different option.

## NO

Is one of the messages contained in either *"Table A"* or *"Table B"* displayed?

### YES

Go to the beginning of *"Unit Replacement"*, Section 3, and follow all the steps to replace the Disk Unit indicated, and the board connected to it. (see *"Replacing a board"*).

### NO

Go to *"Calling for Help"*, Section 5.

### d. Floppy Unit test

The following messages are displayed:

```
TEST EXECUTION TIME 3 MINUTES

MONITOR: ... processes created

sgtst ------>
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

## YES

No faults have been found in the part checked by the system. Select a different option.

## NO

Is one of the messages contained in **"Table A"** displayed?

## YES

Go to the beginning of **"Unit Replacement"**, Section 3. Follow the instructions to replace the DCS0 board (see **"Replacing a board"**) and the diskette unit.

## NO

Go to **"Calling for Help"**, Section A.

## e. Printer test

The following messages are displayed on the screen:

```
TEST EXECUTION TIME 3 MINUTES

MONITOR: ...processes created

sgtst ------>
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

**YES**

No faults have been found in the part checked by the system  Select a different option.

**NO**

Is one of the messages contained in *"Table C"* displayed?

**YES**

Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the printer.

**NO**

Go to *"Calling for Help"*, Section A.

## f. File System test

The following messages are displayed on the screen:

```
TEST EXECUTION TIME 3 MINUTES

MONITOR: ...processes created

sgtst ------>
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

### YES

No faults have been found in the part checked by the system. Select a different option.

### NO

Is one of the messages contained in *"Table C"* displayed?

### NO

Go to *"Calling for Help"*, Section 5.

### YES

Go to *"Procedure C"*, later in this section.

## g. Workstation test

**Note:** It is necessary to carry out the *"login"* procedure for the workstation you want to test.

The following message is displayed:

```
Enter the name of the workstation to be tested
```

Reply entering the name of the workstation (ex: `tty02` ). See *"Appendix A - Table C"* in the *"System Operations Guide"*.

The following message is displayed:

```
Input or output [i/o]:
```

Do you want to output data to the chosen workstation?

| NO | YES |
|---|---|
| You want to input data from the chosen workstation. | Reply `o`. |
| | On the screen of the console workstation the following messages are displayed: |
| Enter `i`. | |
| | `TEST EXECUTION TIME 3 MINUTES` |
| On the screen of the console workstation the following messages are displayed: | `MONITOR: 1 PROCESS create` |
| | `sgtst----->` |
| `TEST EXECUTION TIME 3 MINUTES` | |

```
MONITOR:  1  process
created

    sgtst    ----->
```

Reply to the questions by
entering the required.
characters.

**Are the characters displayed on the
screen equal to those entered?**

Is the following message displayed
on the workstation chosen to be
tested?

```
1    AAAAA
2    BBBBB
3    CCCCC
.    -----
.    -----
24   ZZZZZ
```

| NO | YES | YES | NO |
|---|---|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the workstation. | No faults have been found. Select a different option. | No faults have been found. Select a different option. | Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the workstation. |

## h. Read test of Disk/Floppy Unit

The following message is displayed:

```
Select:

0          DISK   0

1          DISK   1

2          DISK   2

3          DISK   3

4          DISK   4

5          DISK   5

6          FLOPPY UNIT

Enter selection:
```

Enter the value corresponding to the disk to be examined and press **RETURN**. Are the following messages and the selection menu displayed?

```
TEST EXECUTION TIME .. MINUTES

MONITOR: 1 process created

    sgtst ------>
```

| NO | YES |
|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instructions to replace the selected Unit: Disk 0, Disk 1, Disk 2, Disk 3, ..., or Diskette Unit and the board connected to it (see *"Replacing a board"*). | No faults have been found  Select a different option. |

## s.  Streamer test

The following messages are displayed:

```
TEST EXECUTION TIME 3 MINUTES

MONITOR: processes created

    sgtst ------>
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

## YES

No faults have been found in the part checked by the system. Select a different option.

## NO

Is one of the messages, contained in *Table A* displayed?

### YES

Go to the beginning of *"Unit Replacement"*, Section 3. Follow the instructions to replace the DCS0 board (see *"Replacing a board"*) and the Streamer Unit.

### NO

Go to *"Calling for Help"*, Section 5.

## t. Tape test

The following messages will be displayed:

```
Select:

    0    Tape 0
    1    Tape 1
    2    Tape 2
    3    Tape 3

Insert your selection:
```

Press the selection and then the following messages will be displayed:

```
Select:

    0    Low Density Tape Unit
    1    High Density Tape Unit

Insert your selection:
```

The following messages are displayed:

```
TEST EXECUTION TIME 3 MINUTES

MONITOR: processes created

    sgtst ------->
```

Are the following messages and the selection menu displayed at the end of the test?

```
... seconds from start

MONITOR: End test
```

<table>
<tr><td align="center">NO</td><td align="center">YES</td></tr>
<tr><td>One of the messages in *Table A* may be displayed on the screen. In any case, go to *"Calling for Help"*, Section 5.</td><td>No faults have been found in the part checked by the system. Select a different option.</td></tr>
</table>

## v.  VME BUS test

The following messages are displayed on the screen:

```
L       Local Area Network test in Loop Back
R       Local Area Network test
```

```
Documentation about present menu is on-line.
Enter HELP to activate it
```

```
Enter your selection:
```

If you press  L  the test in Loop Back run automatically, while if you press  R  the following message will be displayed:

```
Enter name of system to connect:
```

You must press the name of the system in this manner:

address name alias    (only one space must be entered between the items)

and press *Return*.

For example enter:

```
    89.0.0.3 pc3 host3
```

and then press *Return*.  (see *etc/hosts*  file)

The following messages are displayed:

```
TEST EXECUTION TIME 3 MINUTES
```

```
MONITOR:     ...processes created
```

```
sgt st      ------->
```

Are the following messages and the selection menu displayed at the end of the test?

```
...  seconds from start

MONITOR: End test
```

## NO                                          ## YES

One of the messages in *Table G* may          No faults have been found in the
be displayed on the screen. In any             part checked by the system. Select
case, go to *"Calling for Help"*,              a different opinion.
Section 5.

## q. End test

The following message is displayed:

```
END OF DIAG
```

Reply by pressing simultaneously *CTRL* + *d*. The system is ready for a new login.

# TABLE A

SGIOB
SGIOC        }        open error in read          errno=...
SGRALL

SGIOB
             }        open error in write         errno=...
SGIOC

SGIOB
SGIOC        }        seek error       errno=...
SGRALL

SGIOB                 create error     errno=...

SGIOB
             }        write error       errno=...
SGIOC

SGIOC
SGIOB        }        read error:data read=... data expected=...
SGSTREAM              errno=...
SGTAPE

SGIOC
SGIOB        }        read eror data read=... expected=...
SGSTREAM
SGTAPE

SGPRT
SGIOB        }        close error on file
SGIOC                 errno=...
SGSTREAM
SGTAPE

# TABLE B

MONITOR
SGCOMM
SGPRT             }      ...:   open error or . ....
SGTTYR
SGTTYW

MONITOR          ...: not found in directory

SGFS          ... not found

# TABLE C

SGPRT

SGTTYW }   ... write error on ...

SGCOMM      ... read error on ...

# TABLE D

SGCPU

SGSYS

}      Memory not available

| | |
|---|---|
| MONITOR: | Number of parameters is wrong |
| MONITOR: | Time parameter wrong |
| MONITOR: | Too many processes |
| MONITOR: | Error onthe script file command line |
| MONITOR: | ... not created |
| MONITOR: | sgservice not created |
| MONITOR: | sgtimer not created |
| SGTTYW: | Error in function TGETENT |
| SGTTYW: | PAR parameter not found in TERMCAP |
| SGTTYW: | open error on /ETC/TTYTYPE file |
| SGTTYW: | ... not found in /ETC/TTYTYPE file |
| SGCPU: | memory errors written... Read... |
| SGCPU: | Floating point error |

# TABLE E

| | display | unit to be replaced |
|---|---|---|
| ** | 05 through 0F | System Media (Disk or Diskette) |
| ** | 18 | System Media (Disk or Diskette) |
| ** | A4 through B6 | System Media (Disk or Diskette) |
| | C0 | CPU0 |
| * | C1 through C2 | Diskette DIAGX2 |
| | C3 through C4 | Floppy Controller |
| | C5 through C6 | CPU0 + MEM 1/2/3 |
| | C7 through CB | CPU0 |
| | CC | Floppy Controller |
| | CD | Diskette Unit |
| | CE through CF | Floppy Controller |
| | D0 | MEM1 |
| | D1 through D2 | MEM 1/2/3 |
| | D3 | MEM1 |
| | D4 | Floppy Controller |
| | D8 through E6 | CPU0 |
| | EE | CPU0 |

| display | unit to be replaced |
|---|---|
| EF | SCX |
| F0 | CPU0 |
| F1 | CHX0 |
| F3 | SCX + POWER |
| F4 | DCS0 |
| F8 through F9 | BOOT Portable EPROM |
| FC | CPU1 |
| FE | CPU0 |
| FF | CPU0 + MEM1 |
| Any value (with STANDBY or HW CHECK or SW CHECK LEDs on) | SCX + CPU0 |

* Replace the *DIAGX2* diskette used with another *DIAGX2* diskette and go to the beginning of this section. Repeat the operations from the beginning. If the same problem occurs go to *"Run from Disk"* above, and select option *"d"*, Test of Unit Floppy. Remember that if any error occurs you will need to replace the Disk Controller board (see *"Replacing a board"*) and the Diskette Unit.

** The logical structure of the System Media (Disk or Diskette) may be altered. Format the disk. (See *"Formatting"* described in the *"System Operations Guide"*). Restore the disk with the saved copy and restart the test procedure from the beginning. If the problem occurs again, go to *"Unit Replacement"*, Section 3, and follow the instructions to replace the System Media unit.

# TABLE F

| unit identifier | unit description |
|---|---|
| SCX0 | System Controller |
| BOOT | Portable EPROM |
| CPU0 | Central Processor #0 |
| CPU1 | Central Processor #1 |
| CHX0 | Cache #0 |
| CHX1 | Cache #1 |
| SP0_X | Station Processor #X |
| SP1_X | Station Processor #X |
| SP2_X | Station Processor #X |
| SR0_X | Station Processor #X |
| SR1_X | Station Processor #X |
| LP0_X | Line Processor #X |
| DCSX | Disk/Floppy Controller |
| DCEX | Disk/Floppy Controller |
| SCSX | Disk/Floppy Controller |
| ESDX | Disk Controller |
| RSDX | Disk Controller |
| TPE0 | Tape Controller |
| LAN | Local Area Network Controller |
| D_DK0X | Disk Device #X |
| E_DK0X | Disk Device #X |
| R_DK0X | Disk Device #X |
| S_DKXX | Disk Device #X |
| D_ST00 | Streamer Device |
| E_ST00 | Streamer Device |

# TABLE G

**Error Messages:**

LAN   capability not present
    You must control the existence of the directory  /net.

LAN capability not installed
    You must control the existence of the file  /usr/EXOS/lanstart  and its content.

LAN daemon not running

Second LAN daemon UD not running

Second LAN daemon  RWHOD  not running

LAN daemon  FTPD  not running

LAN daemon  RSHD  not running


    You must control the activate *LAN* processes  (see *LAN manual*).

## PROCEDURE A

1. About 30 seconds after releasing the *RESET* button, are the following messages displayed?:

```
ENTRO UN MINUTO        WITHIN ONE MINUTE
INTRODURRE             ENTER
abcd                   dcba
E PREMERE RETURN        AND PRESS "RETURN"
                       KEY
```

## YES

Go to *"Unit Replacement"*, Section 3. You need to replace the control panel.

## NO

2. Is the *CHX0* board installed in the Central Unit?

## YES

Remove the board, insert the dummy board in its place, and repeat the process from the beginning. If you are able to reach this step once again, continue. Otherwise, the disconnected board is faulty and must therefore be replaced. (See *"Replacing a board"*).

# NO

**Are there two CPU boards
installed in the system?**

## YES

Remove the two CPU boards and
swap their positions in the
system; repeat the test from the
beginning. If you are able to
reach this step again, the faulty
unit is the SCX board; otherwise,
it is the CPU board currently in
the additional unit. Go to *"Unit
Replacement"*, Section 3, and
follow the instructions for
replacing the unit in question,
either SCX or CPU. (See
*"Replacing a board"*).

## NO

Go to *"Unit Replacement"*, Section
3, and follow the instructions for
replacing SCX and CPU boards.
(See *"Replacing a board"*).

# PROCEDURE B

1.  Look at the console.

    Is the following message displayed?

    ```
    System Startup Version 2.1
    ```

    ## YES

    Replace the *DIAGX2* diskette used with another *DIAGX2* diskette and go to the beginning of *"Unit Tests"* in this section. Repeat the operations from the beginning. If the same problem occurs go to *"Run from Disk"*, above, and select option *"d"*, Test of Unit Floppy. Remember that if any error occurs you will need to replace the Floppy Controller board (DCS0 or DCE0) (see *"Replacing a board"*) and the Diskette Unit.

    ## NO

    Look at the status display on the control panel. If 0, or D5, or D6 is displayed go to "*Procedure C*", later in this section. If it is not displayed, go to the beginning of "*Unit Replacement*", Section 3, and follow the instructions to replace the unit indicated in *Table E*.

# PROCEDURE C

Before performing these operations make sure the personalization of the terminals and the cable connections are correct.

1.  Go to the beginning of *"Unit Replacement"*. Section 3. Follow the instructions to replace one workstation with another, using the console or another workstation.

2.  Go to *"Unit Tests"*, above, and follow the instructions from the beginning, remembering that:

    a.  If you return to this procedure with the same problem, go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the *SPX/LPX* board having console workstation connected (see *"Replacing a board"*).

    b.  If the unit tests end without errors, go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the console workstation.

# PROCEDURE D

| *unit not present* | *operations* |
|---|---|
| D_DK00<br>D_DK01<br>D_DK02<br>D_ST00 | Go to *"Unit Replacement"*, Section 3, and follow the instructions to replace the unit indicated in the message and the DCS0 board (see *"Replacing a Board"*). |
| D_DK03<br>D_DK04<br>D_DK05 | Go to *"Unit Replacement"*, Section 3, and follow the instructions to replace the unit indicated in the message and the DCS1 board (see *"Replacing a Board"*). |
| E_DK00<br>E_DK01<br>E_DK02<br>E_DK03 | Go to *"Unit Replacement"*, Section 3, and follow the instructions to replace the unit indicated in the message and the ESD0 board (see *"Replacing a Board"*). |
| E_DK00<br>E_DK01<br>E_DK02<br>E_ST00 | Go to *"Unit Replacement"*, Section 3,. and follow the instructions to replace the unit indicated in the message and the DCE0 board (see *"Replacing a Board"*). |
| E_DK04<br>E_DK05<br>E_DK06<br>E_DK07 | Go to *"Unit Replacement"*, Section 3, and follow the instructions to replace the unit indicated in the message and the ESD1 board (see *"Replacing a Board"*). |
| E_DK03<br>E_DK04<br>E_DK05 | Go to *"Unit Replacement"*, Section 3, and follow the instructions to replace the unit indicated in the message and the DCE1 board (see *"Replacing a Board"*). |
| R_DK00<br>R_DK01 | Go to *"Calling for Help"*, Section 5. |

| R_DK02 | Go to *"Calling for Help"*, Section 5. |
| R_DK03 | |

| TPE0 | Go to *"Calling for Help"*, Section 5. |

| A L L   O T H E R UNITS | Go to the beginning of *"Unit Replacement"* Section 3, and follow the instructions to replace the unit not matching the effective system configuration. |

# PROCEDURE E

Is the *AC PRESENT* indicator on the control panel lit?

## NO

Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the Power Supply 1 and the SCX board (see *"Replacing a Board"*).

## YES

Did the *DC ON* indicator on the control panel light up about 3 seconds before going out?

## YES

The faulty power supply must be located. In order to do this, it is necessary to disconnect the power supplies from the system one at a time, starting with the most recently installed supply and continuing until the second supply in the central unit is disconnected. Perform the following operations:

1. Locate the main switch at the rear of the system and turn it to 0 (*OFF*). Raise the upper panel of the system.

2.  Locate the power supply that was most recently installed in the system.

3.  Locate the V0x J-02 (X may be 4, 3 or 2) socket at the front of the power supply and disconnect the socket that powers the system unit.

4.  Go to *"Unit Tests"* and repeat the previous test. If there are no problems, the disconnected power supply is the faulty one and must therefore be replaced (see *"Unit Replacement"*).

    If however, the problem is encountered once again, reconnect the V0X J-02 socket to the power supply and repeat steps 3 and 4 with the next power supply (e.g., reconnect power supply 4 and disconnect power supply 3). If the problem continues to occur even after having disconnected power supply 2, go to *"Unit Replacement"* and replace the SCX board. (See *"Replacing a Board"*).

**NO**

Are the outer panels attached firmly?

| YES | NO |
|---|---|
| Go to the beginning of *"Unit Replacement"*, Section 3, and follow the instructions to replace the SCX board (see *"Replacing a Board"*). | Close them firmly and go to the beginning of this section. |

# Section III

# UNIT REPLACEMENT

This section describes how to replace a faulty unit that has been identified in Section 2, *"Unit Tests"*.

Make sure that all electrical connections are correct before replacing a unit. More specifically, check the power, data and signal cables connected to the unit.

If you find that an electrical connection is faulty, you should repeat the unit test which you previously ran.

# PREPARING TO REPLACE A UNIT

1.  Remove the *DIAGX2* diskette.

2.  If the unit tests were performed from disk, shut down the operating system using the appropriate procedure as described in *"System Operations Guide"*.

3.  Power off the system by setting the main switch at the back of the system to *"O"*.

4.  Remove the panels of the system. (See *Section 6*).

5.  Go to the procedure relating to the unit to be replaced, in this section. After, return to this page, step 6.

    *Replacing the Control Panel*
    *Replacing the Power Supply*
    *Replacing the Fan*
    *Replacing the Diskette Unit*
    *Replacing the Streamer Unit*
    *Replacing the Disk Unit*
    *Replacing a Board*
    *Replacing a Workstation*
    *Replacing a Printer*

6.  Disconnect the automatic power-off cable from the socket B-01 J-02 on the first fan unit. If present, disconnect the automatic power-off cable from the socket B-01 J-02 on the second fan unit.

7.  Power the system on by setting the main switch at the back of the system to "I" and pressing the POWER ON button on the control panel. Check that the fans are working properly.

8. Are the fans working properly?

**NO**

The fault that occurred may have been caused by a system fan malfunction.
Shut the system down by pressing the *STANDBY* button on the control panel. Go to the corresponding procedure for the fan to be replaced, in this section.

**YES**

9. Turn the system off by pressing the *STANDBY* button on the control panel. Insert the plug of the automatic power-off cable in the socket B-01 J-02 on the first fan unit. If present, insert the plug of the automatic power-off cable in the socket B-01 J-02 on the second fan unit. Remount the panels.

# REPLACING THE CONTROL PANEL

## Removal

1. Locate the two bolts above the system control panel. Unscrew them with the box spanner and put them to one side.
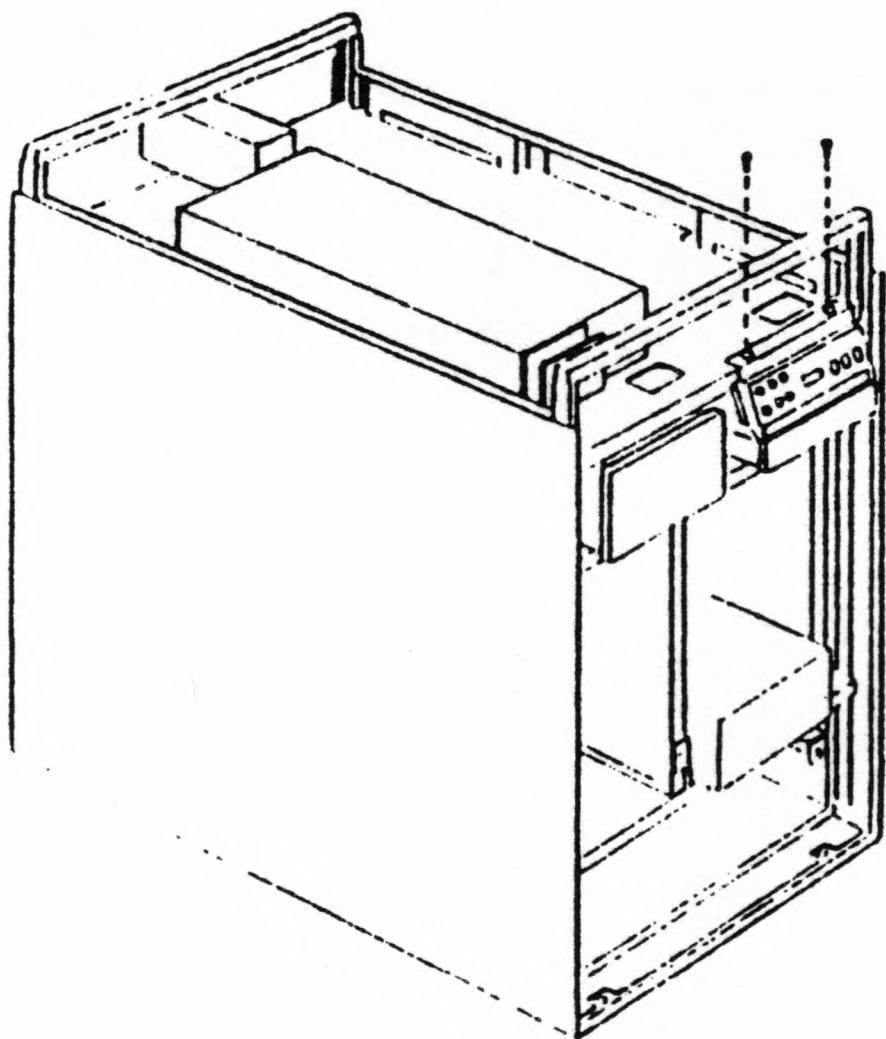
2. Slide off the control panel so that it is possible to locate the cables connected to the unit.
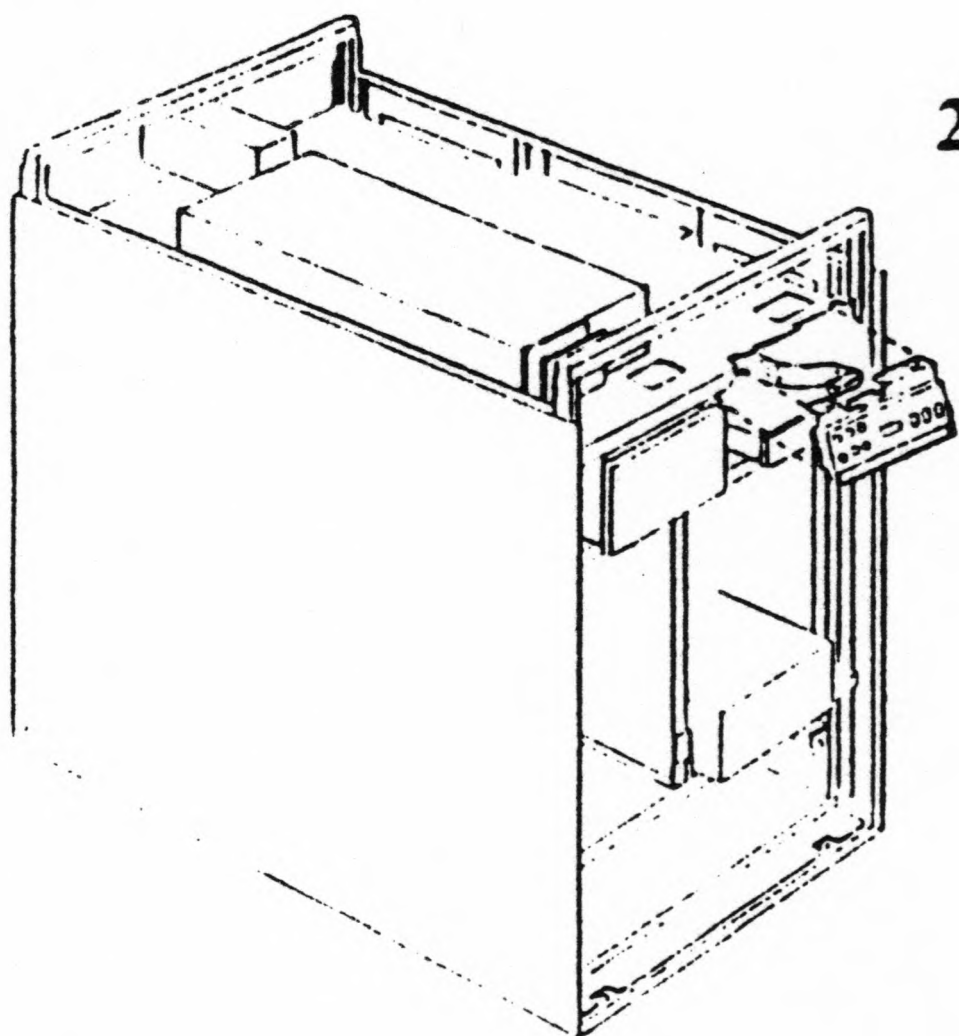
3. Disconnect the data cable. Pull the unit right out.
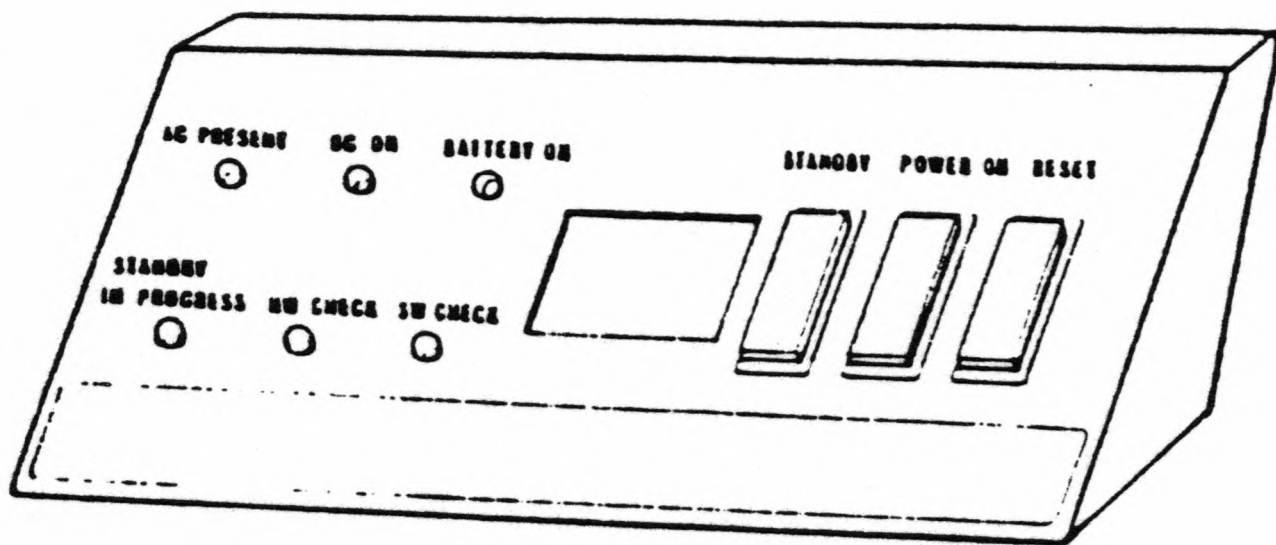
# Reinstallation

1. Move the control panel towards the system, to the position in which it is to be inserted.
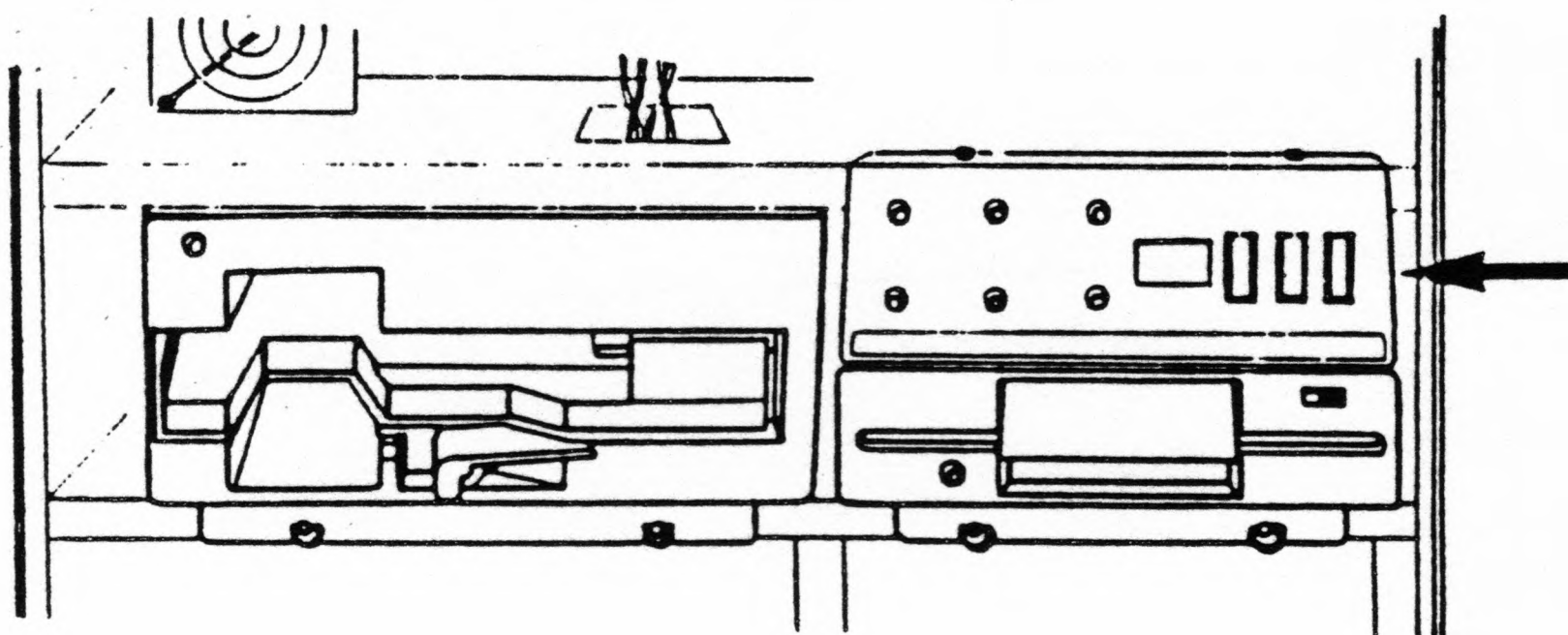
2. Connect the data cable to the back of the control panel.
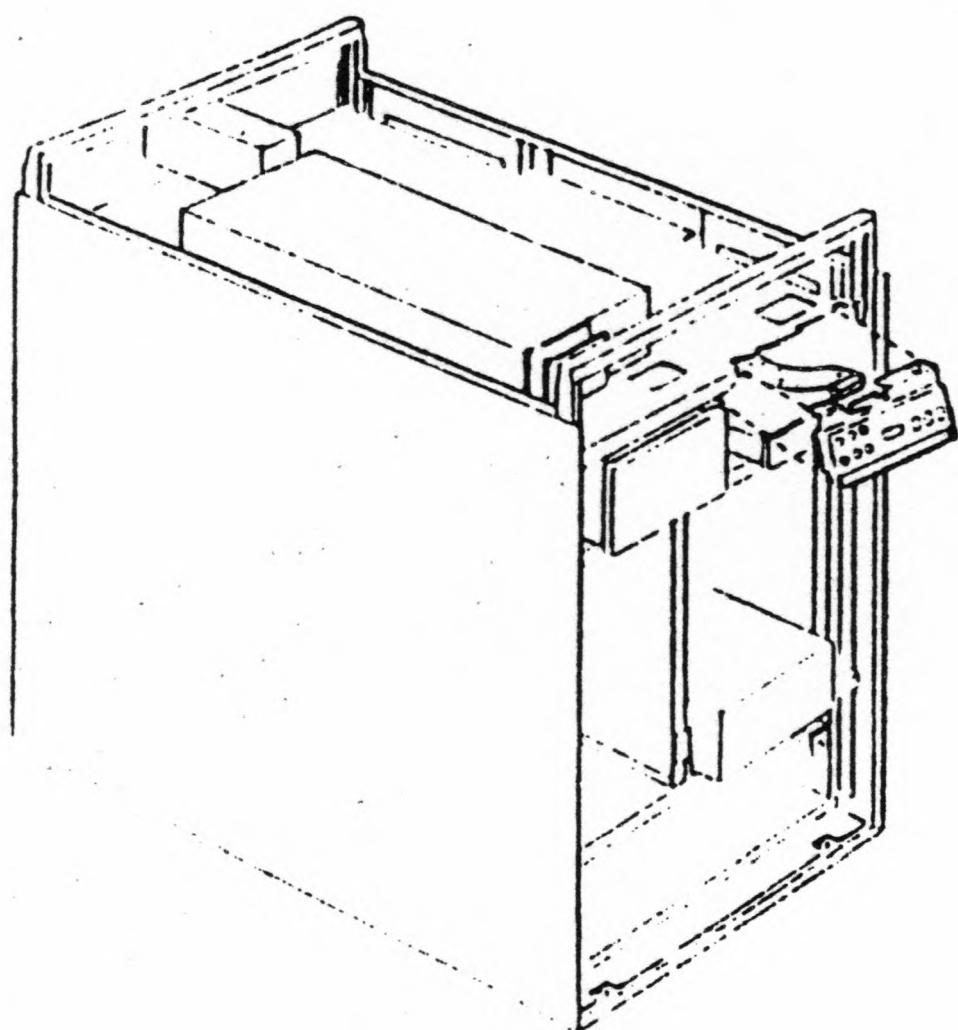
**3.** Remount the control panel on the system.
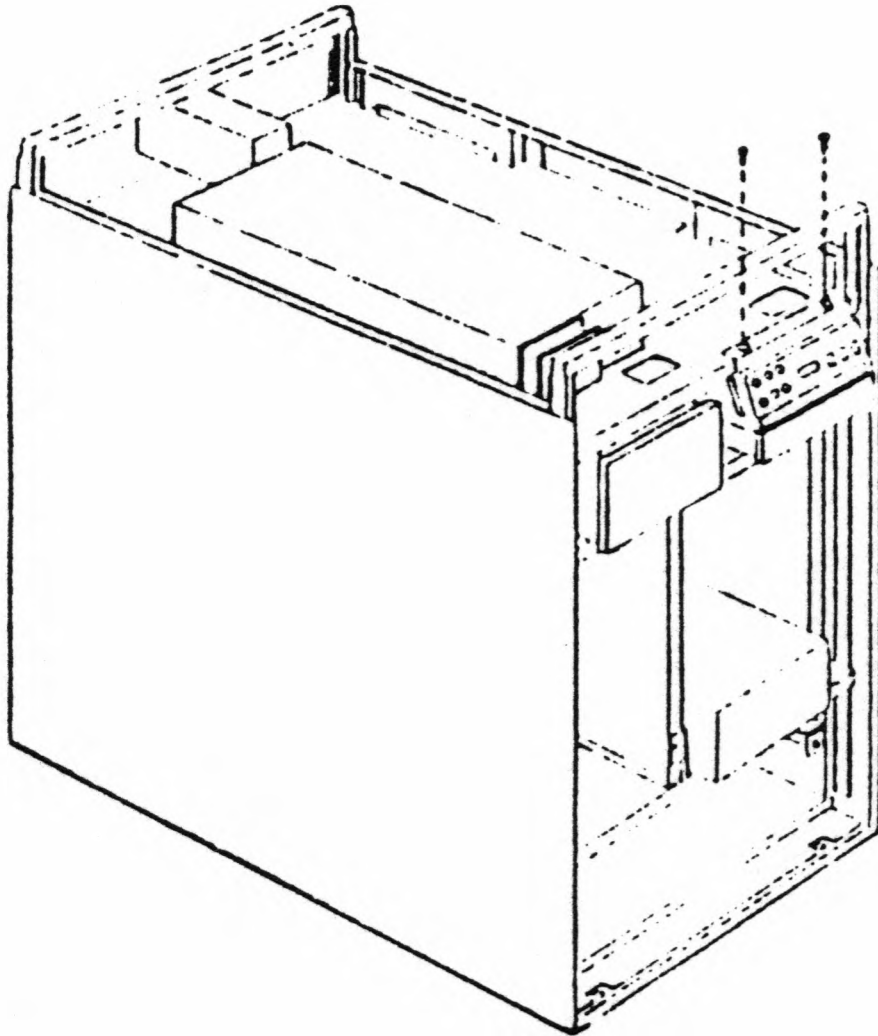
Locate the two holes above the unit and attach the unit to the system using the bolts that were previously unscrewed.

# REPLACING THE POWER SUPPLY

## Removal

1. With the help of the figure, locate the power supply to be replaced.



V-04

V-03

V-02

V-01
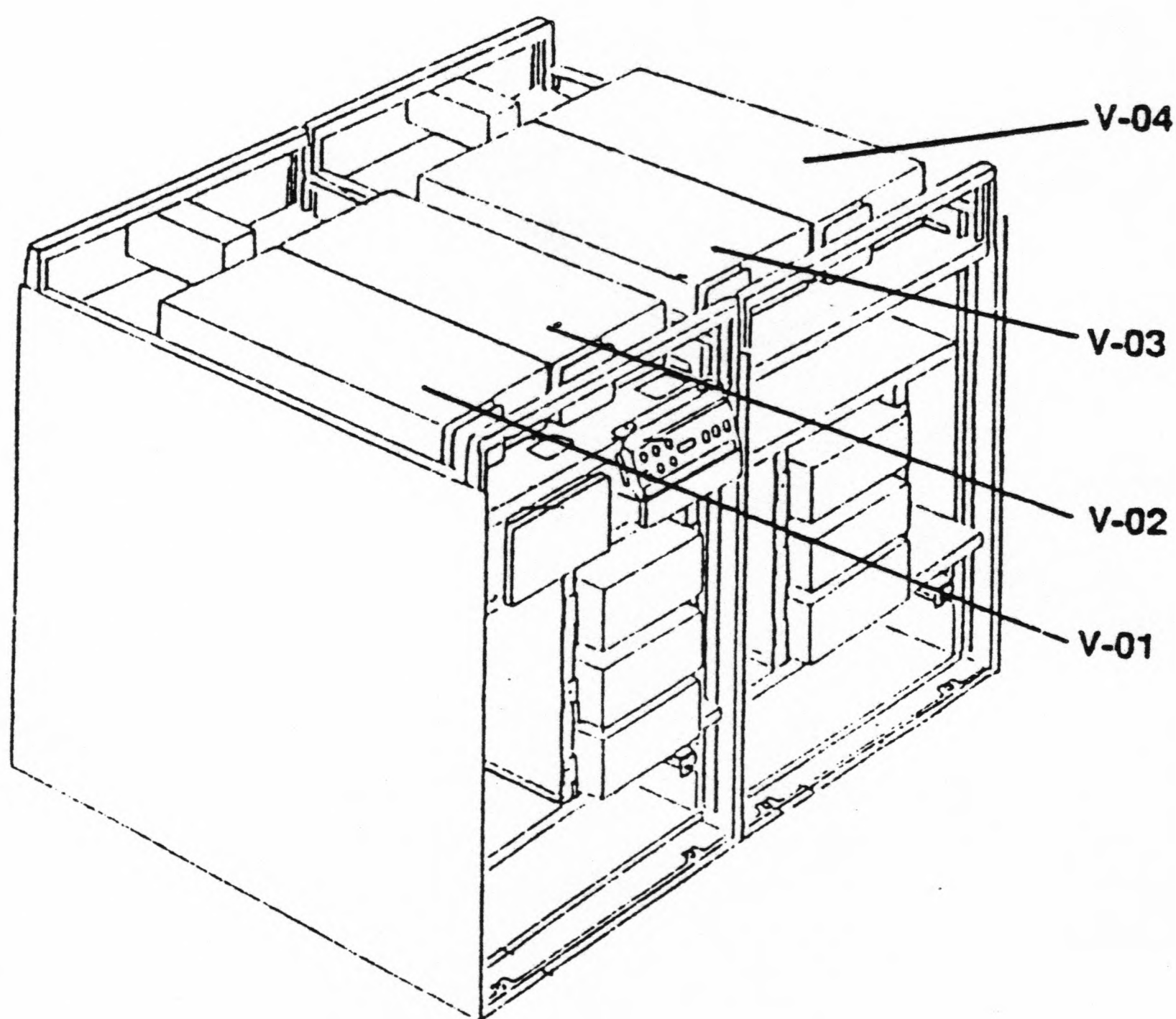
**2.** Disconnect the AC-BOX cable from the plug at the back of the unit:
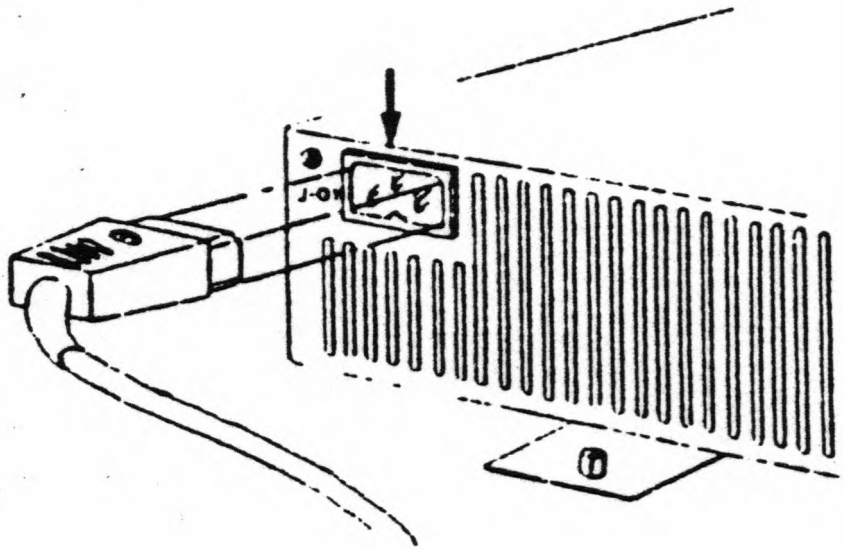
V01-J-01 for the first power supply

V02-J-01 for the second power supply

V01-J-01 for the third power supply

V02-J-01 for the fourth power supply.

**3.** Disconnect the power cable from the plug at the front of the unit:
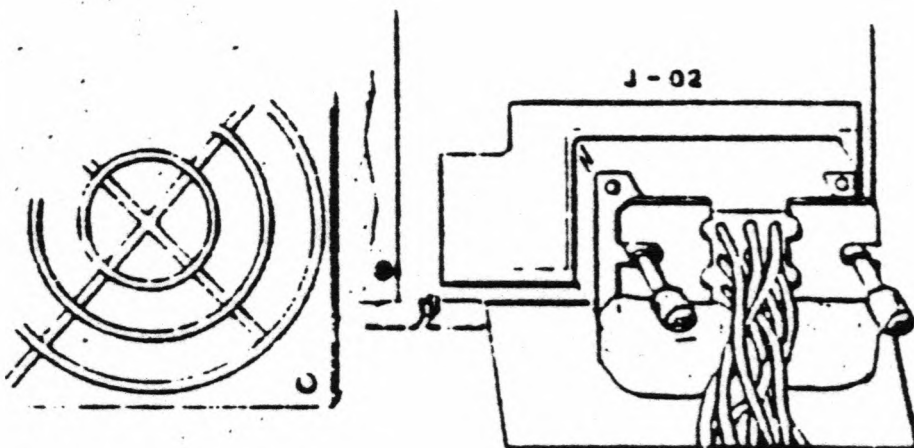
V01-J-02 for the first power supply

V02-J-02 for the second power supply

V01-J-02 for the third power supply

V02-J-02 for the fourth power supply

**4.** Locate the bolt which attaches the power supply to the rear of the system. Unscrew it with the box spanner and put it in a safe place.

Push the power supply towards the rear part of the system. Then lift it up and out of the system.
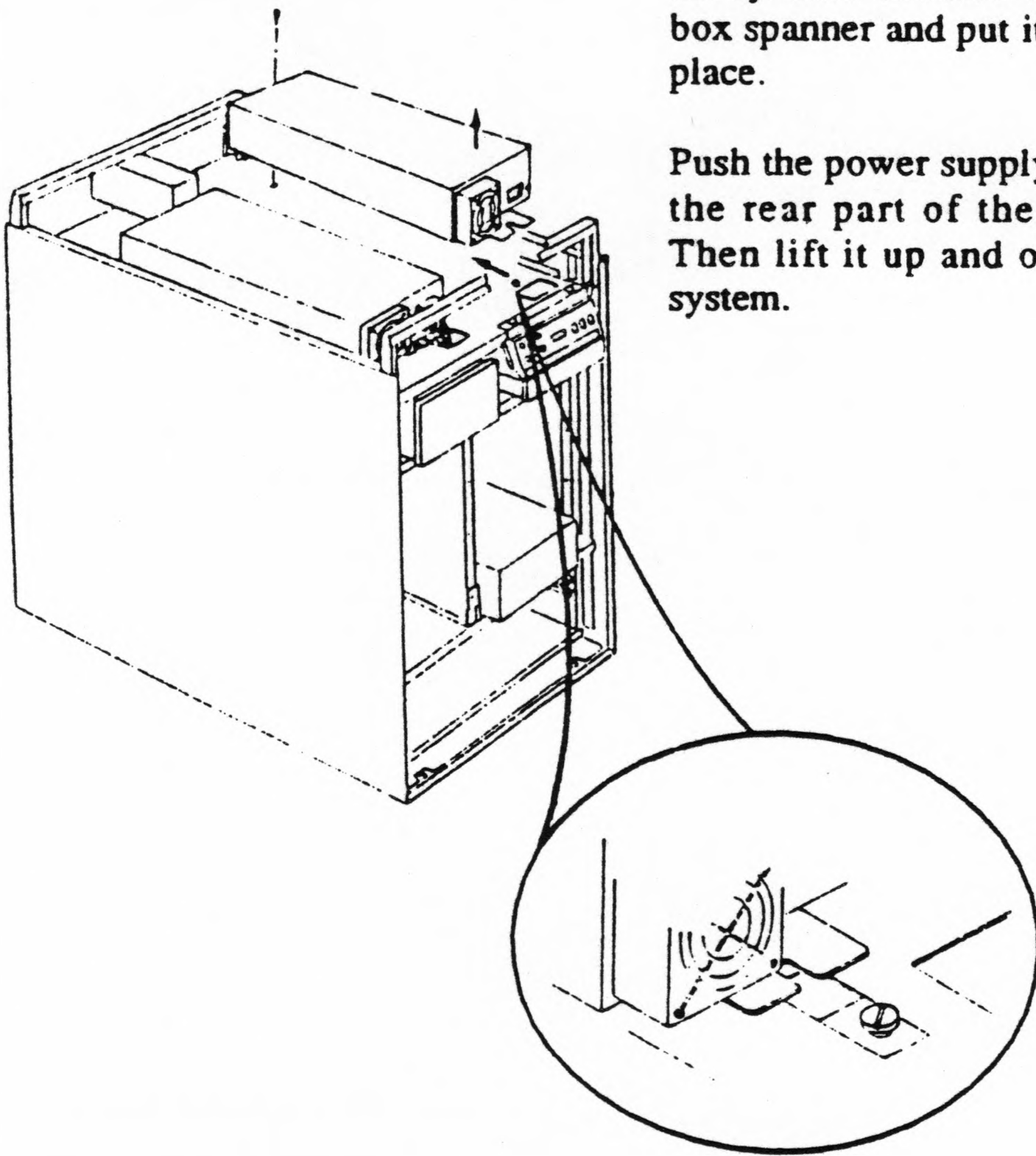
# Reinstallation

1. With the help of the figure, locate the position in which the power supply is to be installed.

V-04

V-03

V-02

V-01
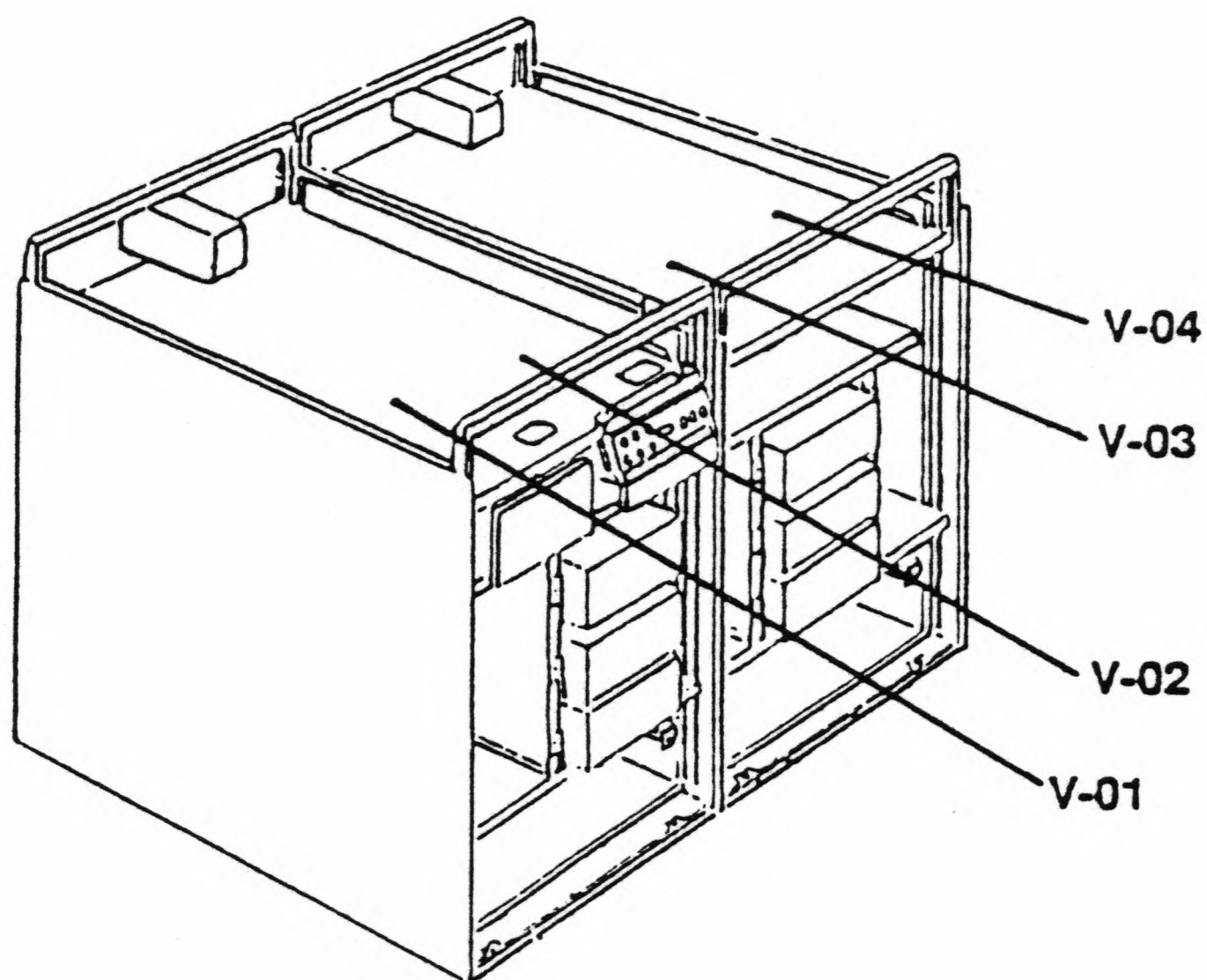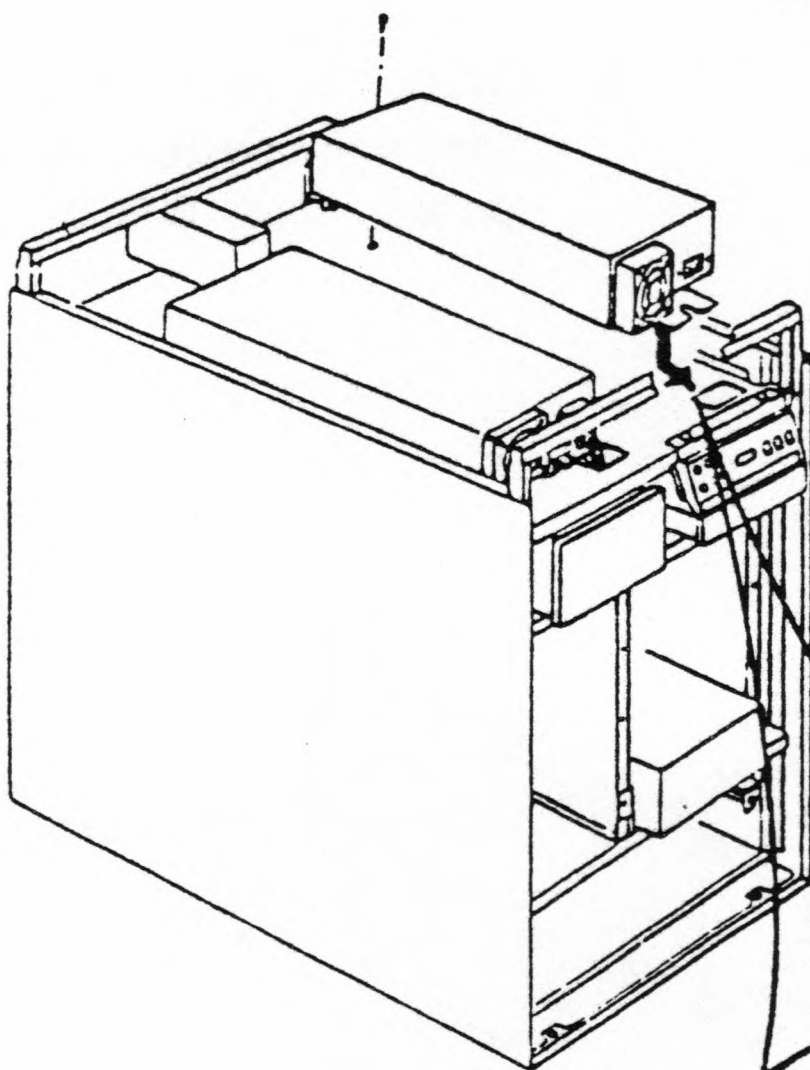
**2.** With the help of the figure, place the power supply in the correct position.

Use the bolt, that was previously unscrewed, to attach the unit to the rear of the system.
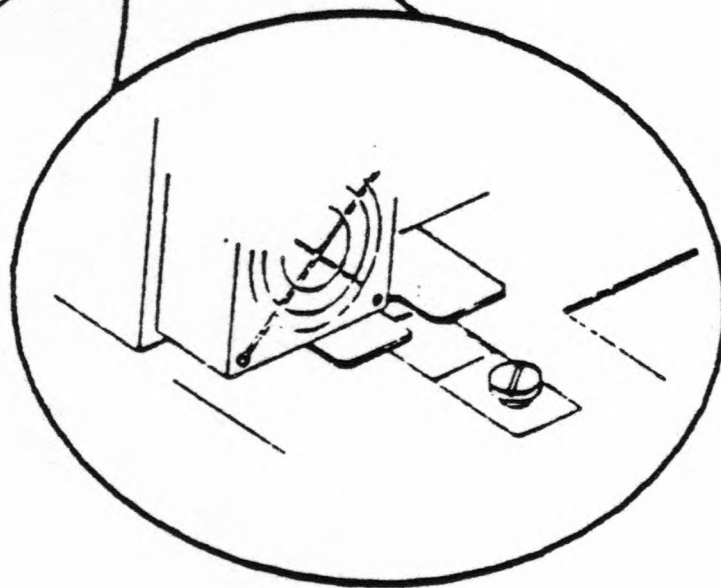
3. Connect the system power cable to the plug at the front of the unit:

V01 J-02 for the first power supply.

V02 J-02 for the second power supply.

V01 J-02 for the third power supply.

V02 J-02 for the fourth power supply.

Fasten the connection by tightening the two screws on the cable socket.

NOTE: In order to facilitate connection, there is a notch on the system which indicates the correct position for connection of the cable socket to the power supply plug. The connection has been correctly executed when the cable socket is lined up with both sides of the notch on the system.
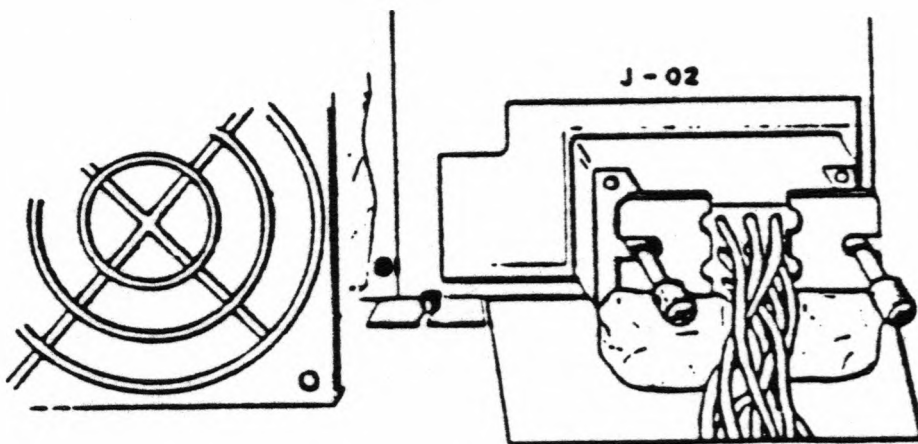
**4.** Connect the AC-BOX cable to the plug at the rear of the unit:
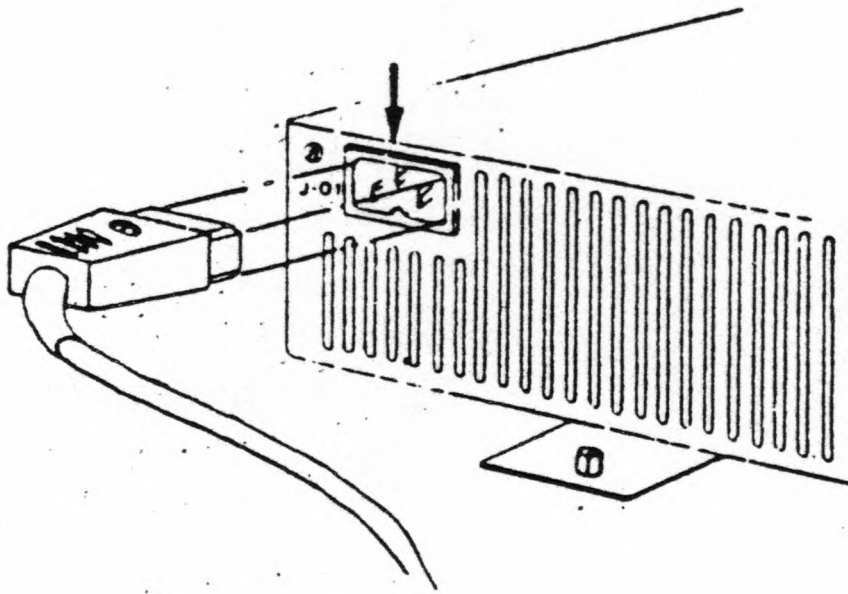
V01 J-01 for the first power supply.
V02 J-01 for the second power supply.
V01 J-01 for the third power supply.
V02 J-01 for the fourth power supply.

# REPLACING THE FAN

## Removal
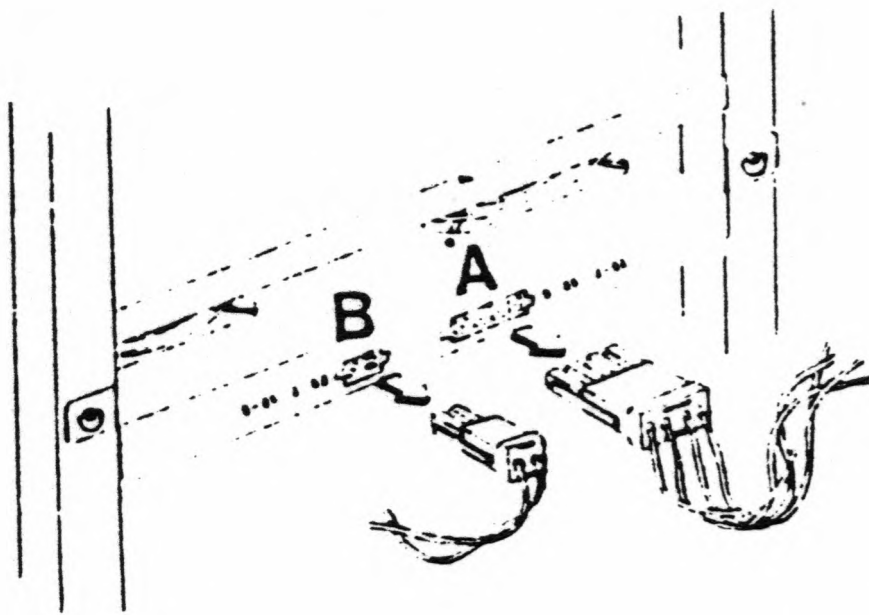
1. At the front of the system, disconnect:

   A. the automatic power-off cable from the B-01 J-01 plug for the fan.

   B. the power cable from the B-01 J-02 plug for the fan.
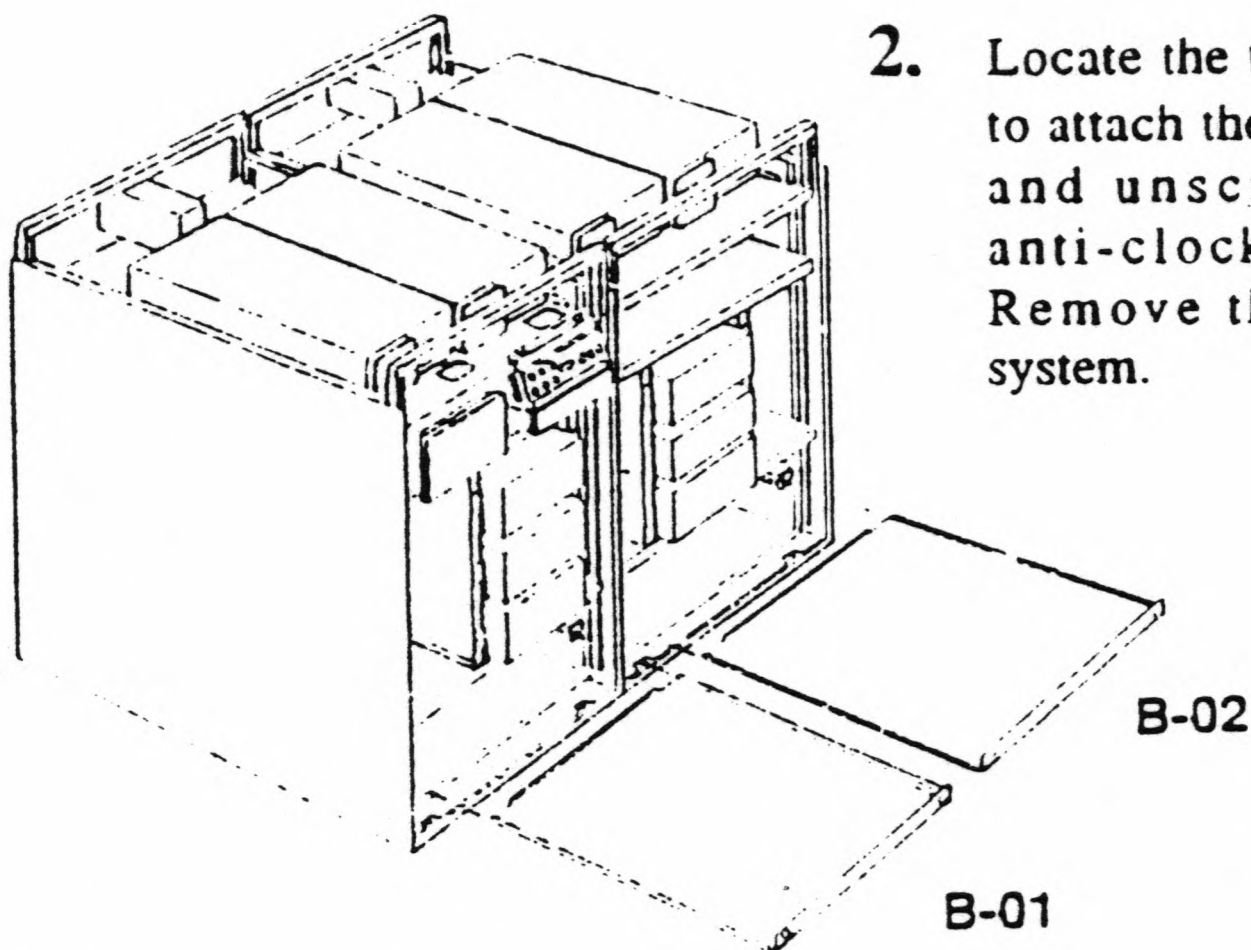
2. Locate the two ring bolts used to attach the unit to the system and unscrew them in an anti-clockwise direction. Remove the unit from the system.

B-02

B-01

# Reinstallation

**1.** Locate the point in the central unit and and insert the fan, allowing it to move freely on the runners at the sides of the system.

Attach the unit to the system by screwing the two ring bolts at the edges of the unit in a clockwise direction.

B-02

B-01
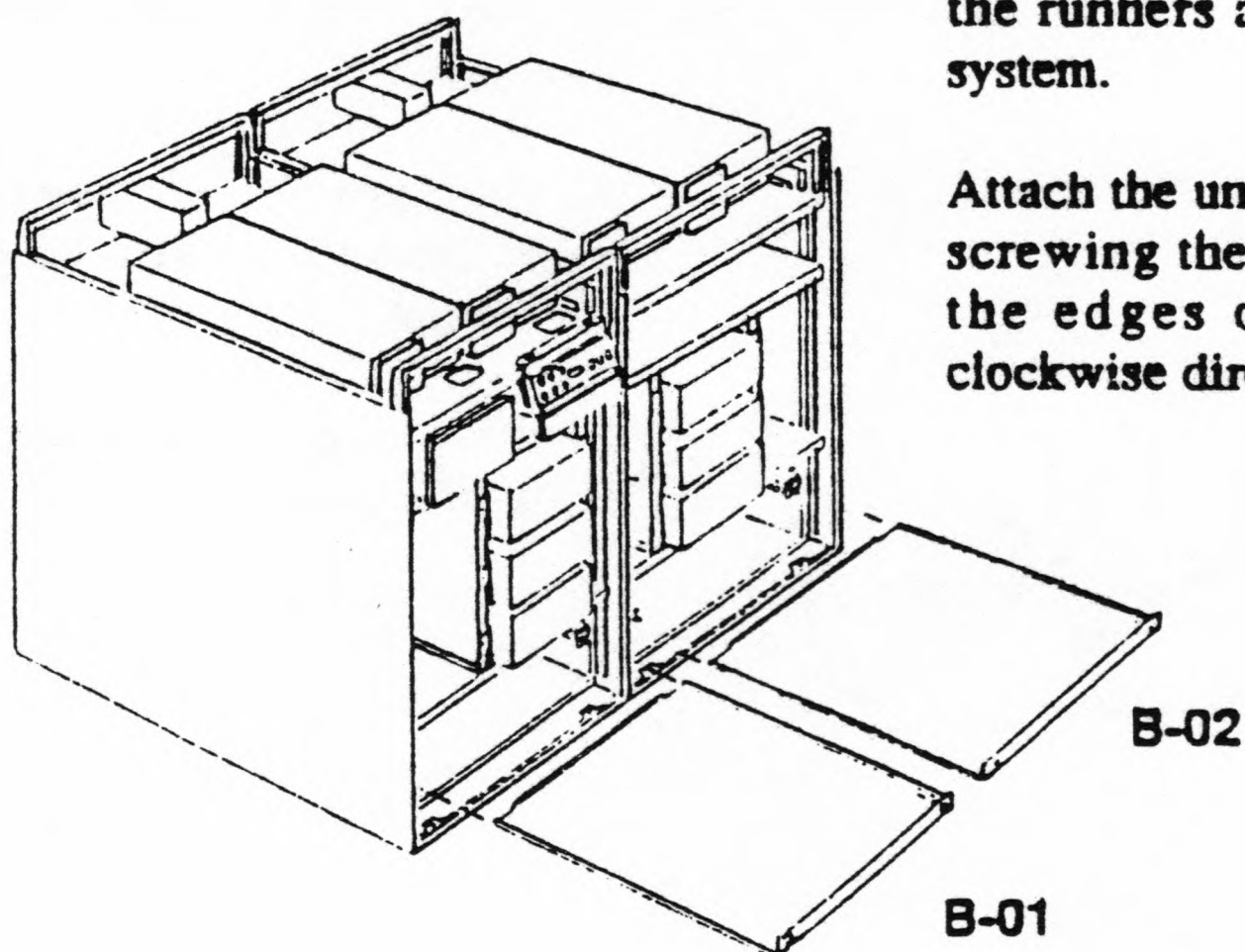
**2.** Locate the B-01 J-01, B-01 J-02 plugs at the front of the fan and connect:

A. the automatic power-off cable to the B-01 J-02

B. the fan power cable to the B-01 J-01.
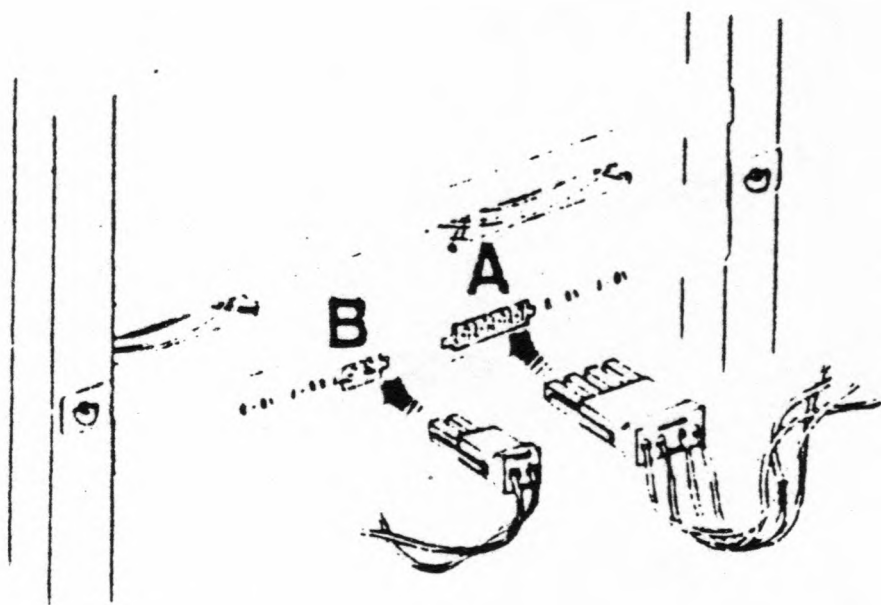
# REPLACING THE DISKETTE UNIT

## Removal

1. The diskette unit is inserted and attached to the system, by means of a small metal frame and two ring bolts. Locate the two ring bolts under the diskette unit, and unscrew them in an anti-clockwise direction.
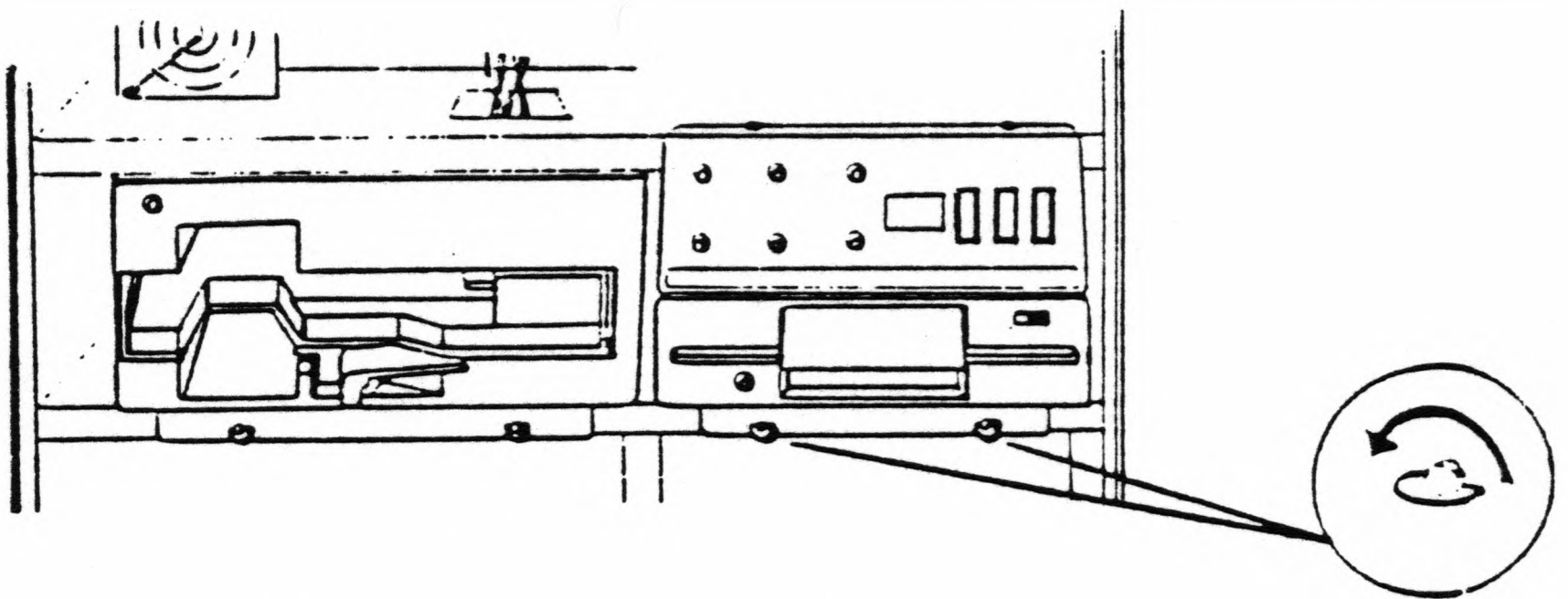
2. Slide off the diskette unit until it is possible to locate the cables connected to the back of the unit.
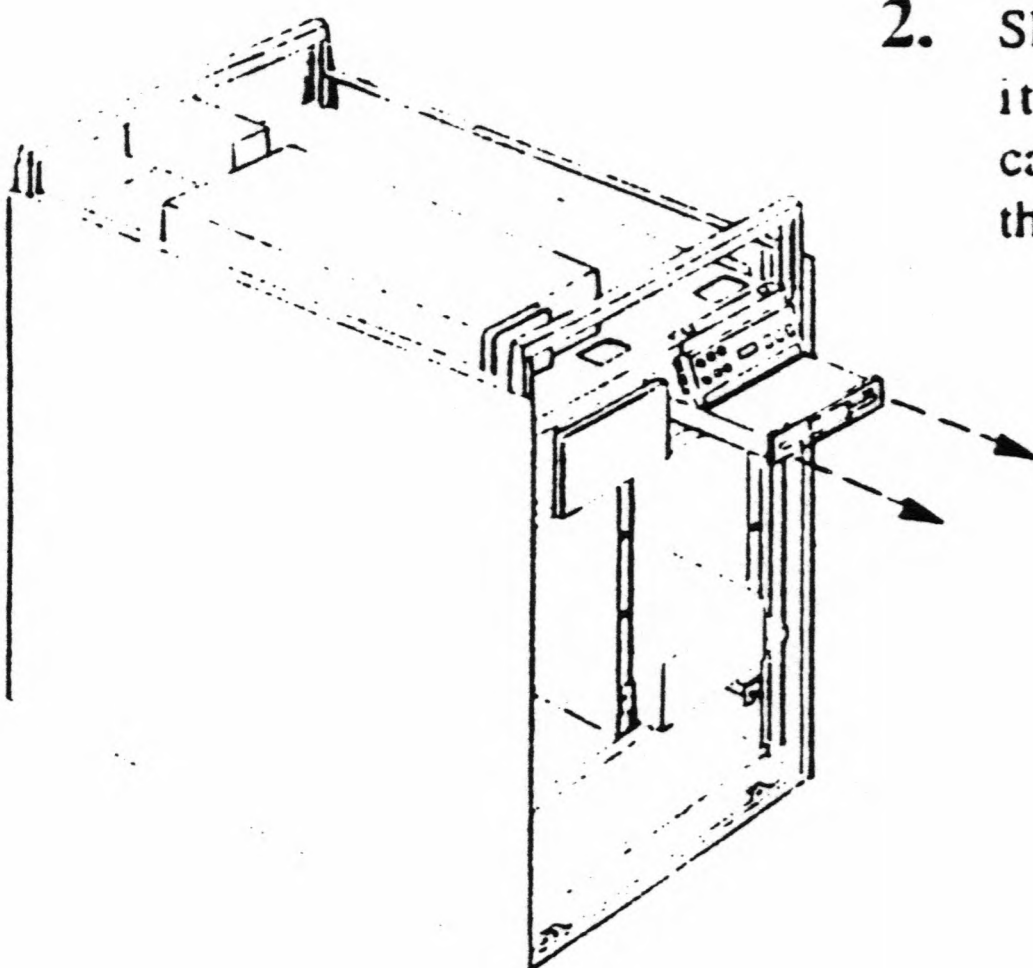
**3.** Unplug the data cable, D04-FLOPPY, and the power cable, D04 J-01. Take the diskette unit out and place it on a flat surface.
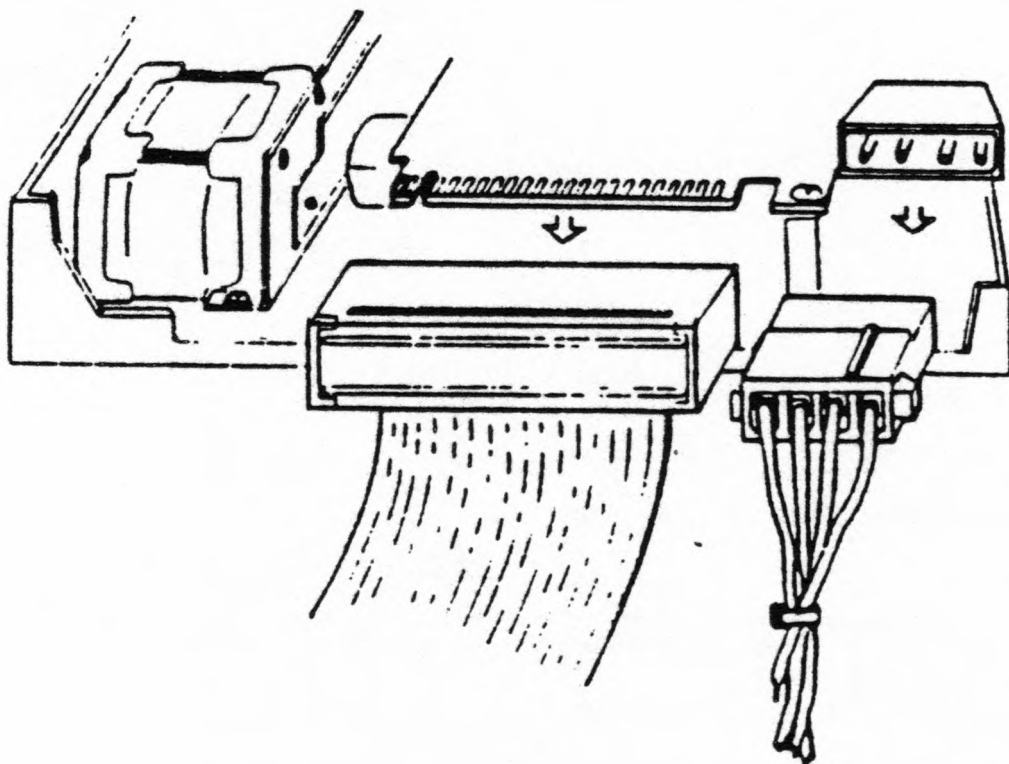


**4.** Locate the four screws, two on the left side and two on the right side, that fix the unit to the frame. Unscrew them and put them in a safe place. Remove the diskette unit from the frame.
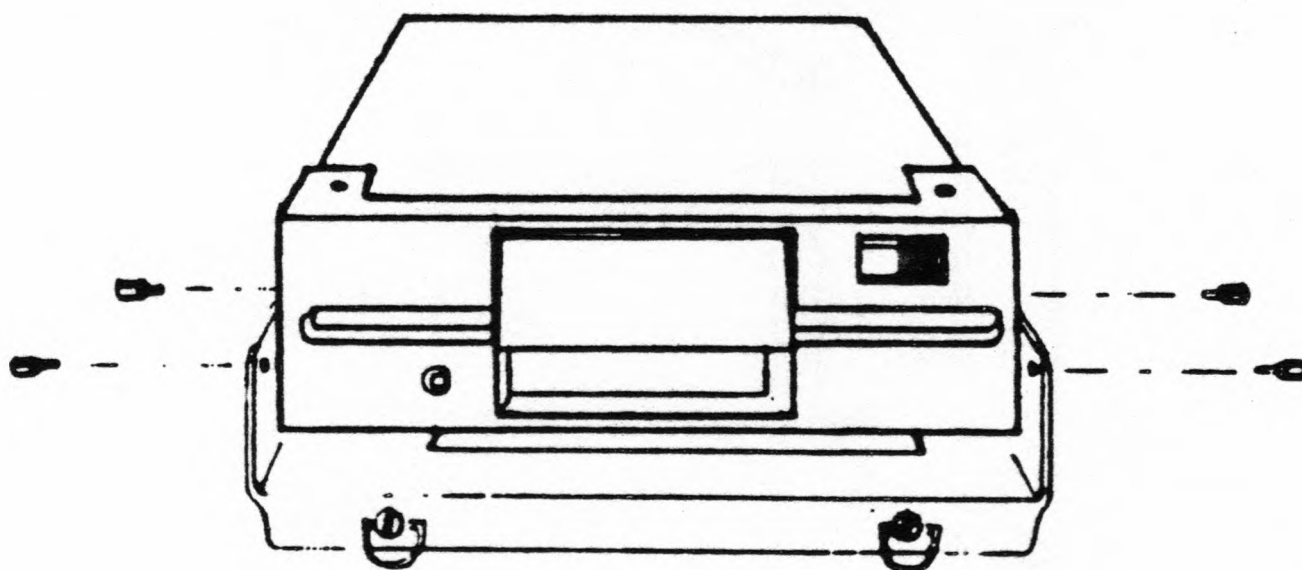
## Reinstallation

1. Using the figure, locate the personalizations contacts and verify that the jumpers conform to the positions in the following tables:

*Toshiba:*

| | |
|---|---|
| D1 | CLOSED |
| D2 | OPEN |
| D3 | OPEN |
| D4 | CLOSED |
| DS | CLOSED |
| MUX | OPEN |
| DG | CLOSED |
| FG | OPEN |
| LD | OPEN |
| P5 | OPEN |
| LI | CLOSED |
| DE/DX | CLOSED |
| DC | OPEN |
| LWD | OPEN |
| SR | CLOSED |
| HR | OPEN |
| TM | CLOSED |
| L6 | OPEN |
| IU | CLOSED |

DC
pow. sup.
CONNECT.

o o o
DG   FG

34
32

Interface
Connector

DC
SR
HR

DE / DX
LWD

MUX

DS

o o o
IU    L6

LD
P5
LI
TM
D4
D3
D2
D1

04
02
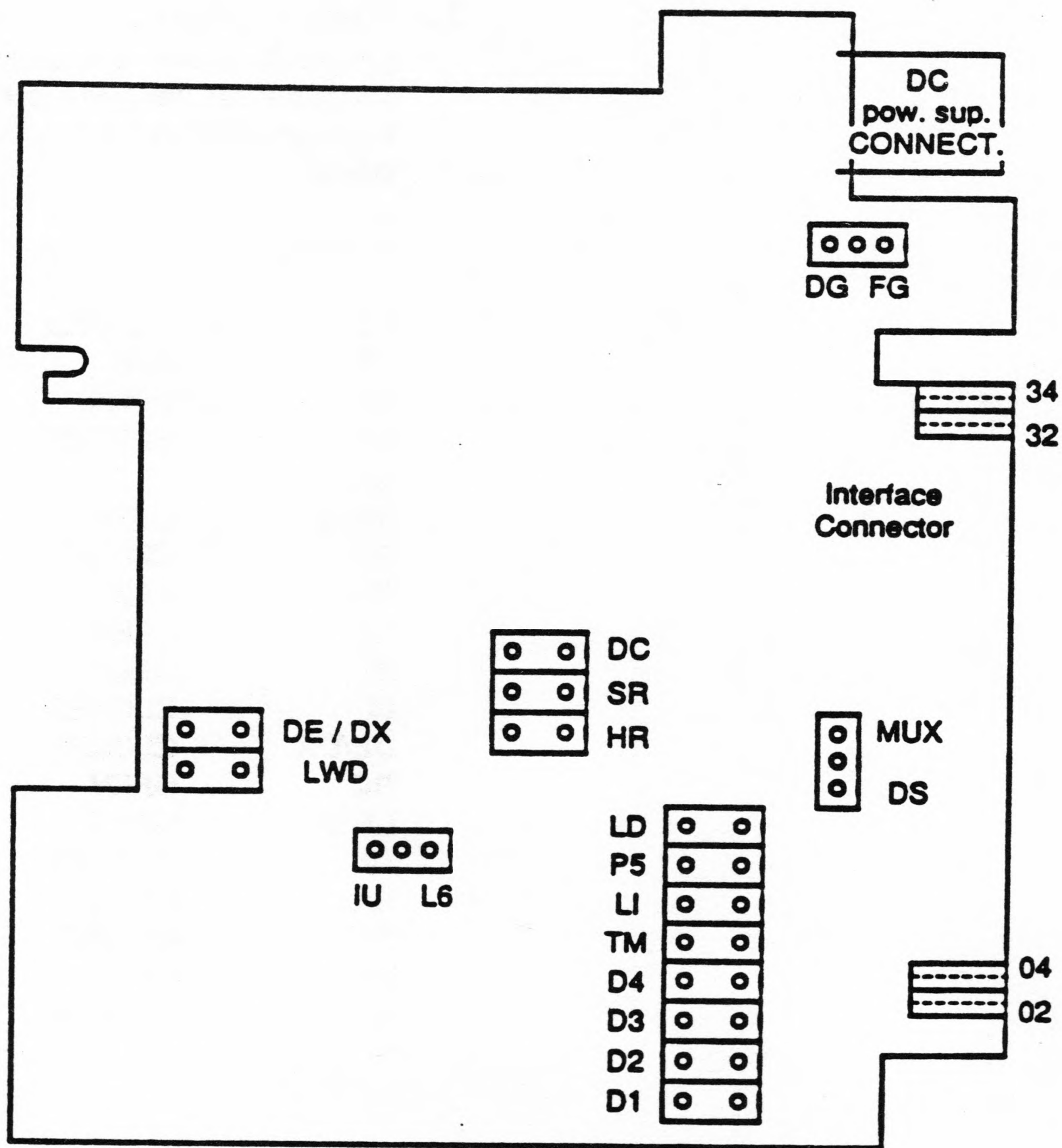
*TEAC:*

| | |
|-----|-----|
| MX | OFF |
| D0 | ON |
| D1 | OFF |
| D2 | OFF |
| D3 | ON |
| U0 | ON |
| U1 | OFF |
| IU | OFF |
| IL | OFF |
| ML | ON |
| LG | OFF |
| I | ON |
| II | OFF |
| IS | OFF |
| RY | ON |
| DC2 | OFF |
| DC3 | ON |
| DC4 | OFF |
| S2 | OFF |
| S3 | OFF |
| S4 | OFF |
| S51 | OFF |
| E2 | ON |
| FG | ON |

S2

S3

S4

FG

I    IS
     II

Small PCBA
on upper side
of FDD

S51

MX { HL
     IU        DC2

ML
RY        DC3
          DC4

LG        E2

IL  U1  U0  D0  D1  D2  D3
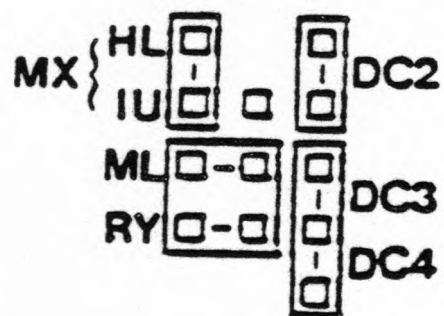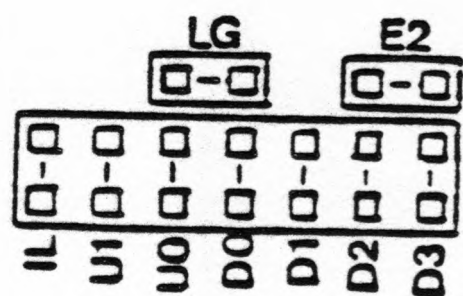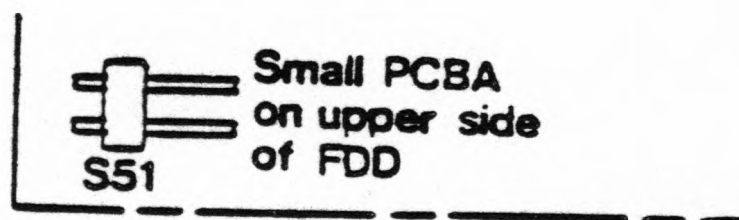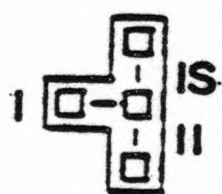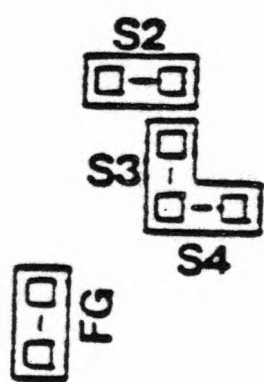
**2.** Place the diskette unit on the metallic frame so that the four holes at the sides of the unit, two on the right and two on the left, are lined up with the holes on the sides of the frame. Use the four bolts that were previously unscrewed to fasten the unit to the frame.
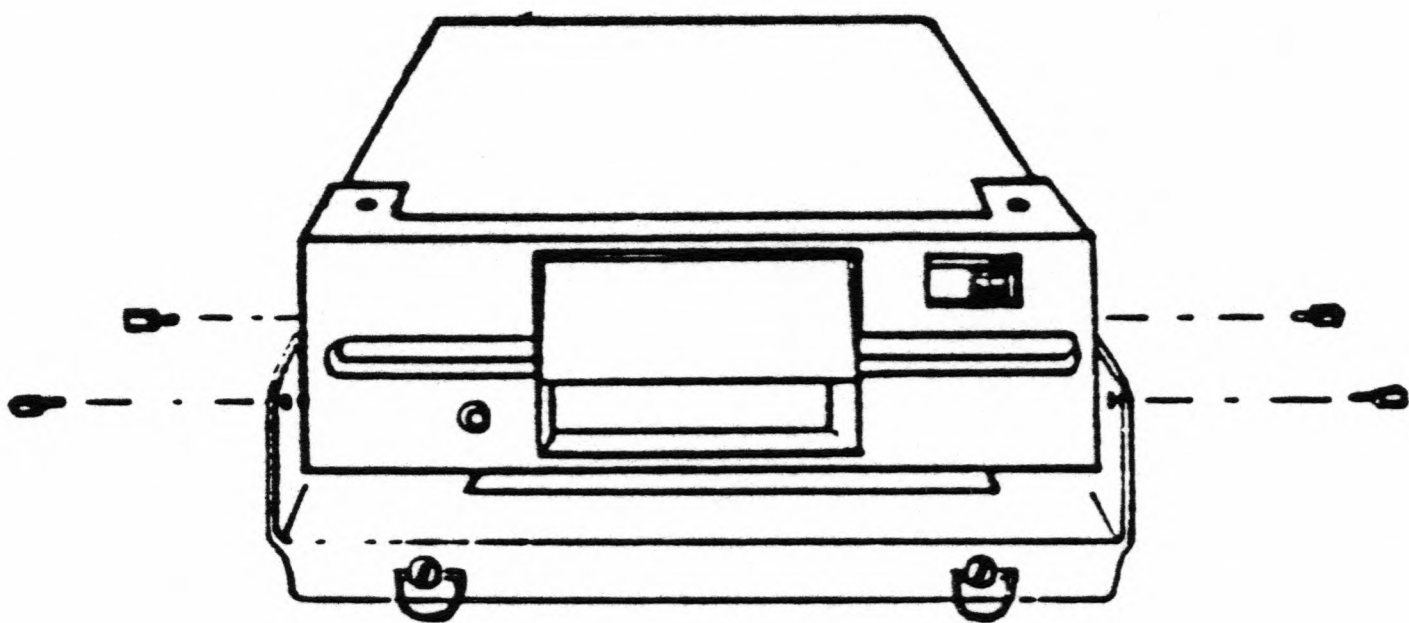
**3.** Insert the diskette assemblage in the runners provided.
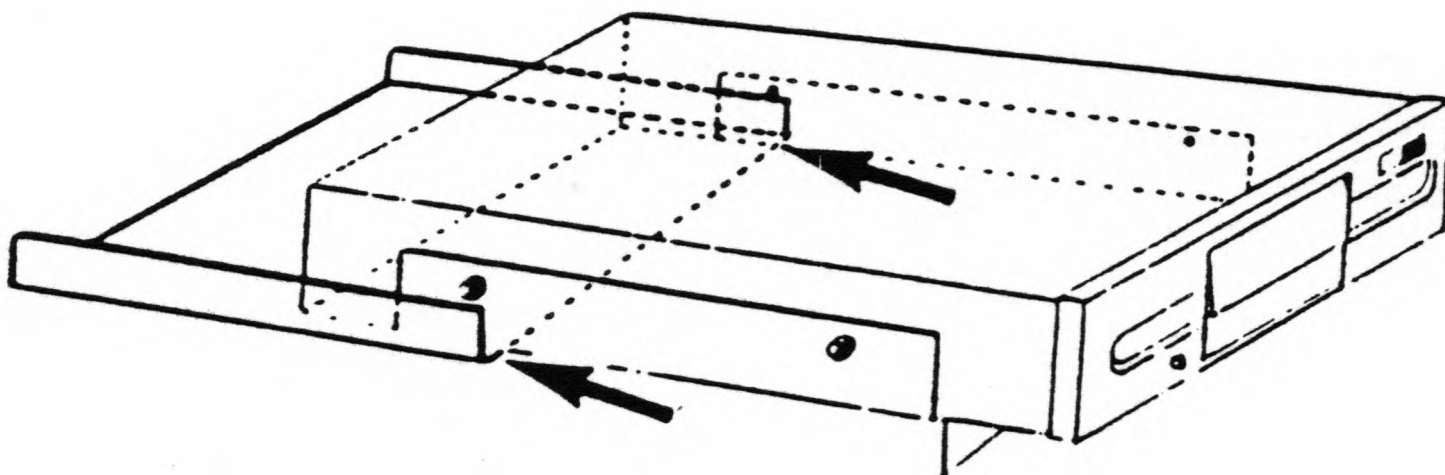
**4.** Connect the following cables at the rear of the unit:

A. D04-FLOPPY data cable to the pin connector.

B. D04 J-01 power cable to the power socket.
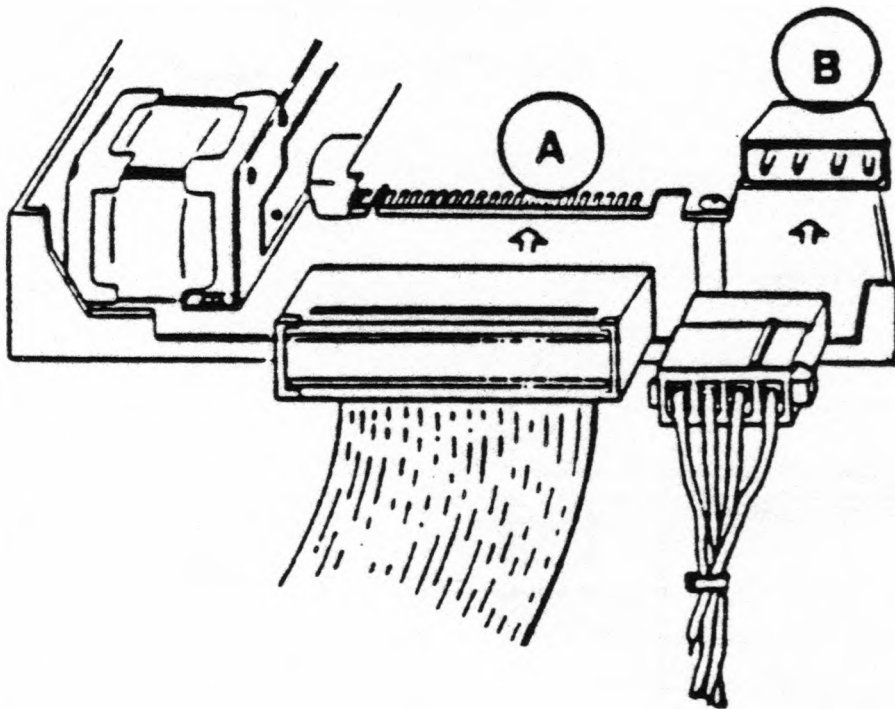
**5.** Insert the diskette unit in the system and fasten it by screwing the ring bolts on the metal frame in a clockwise direction.
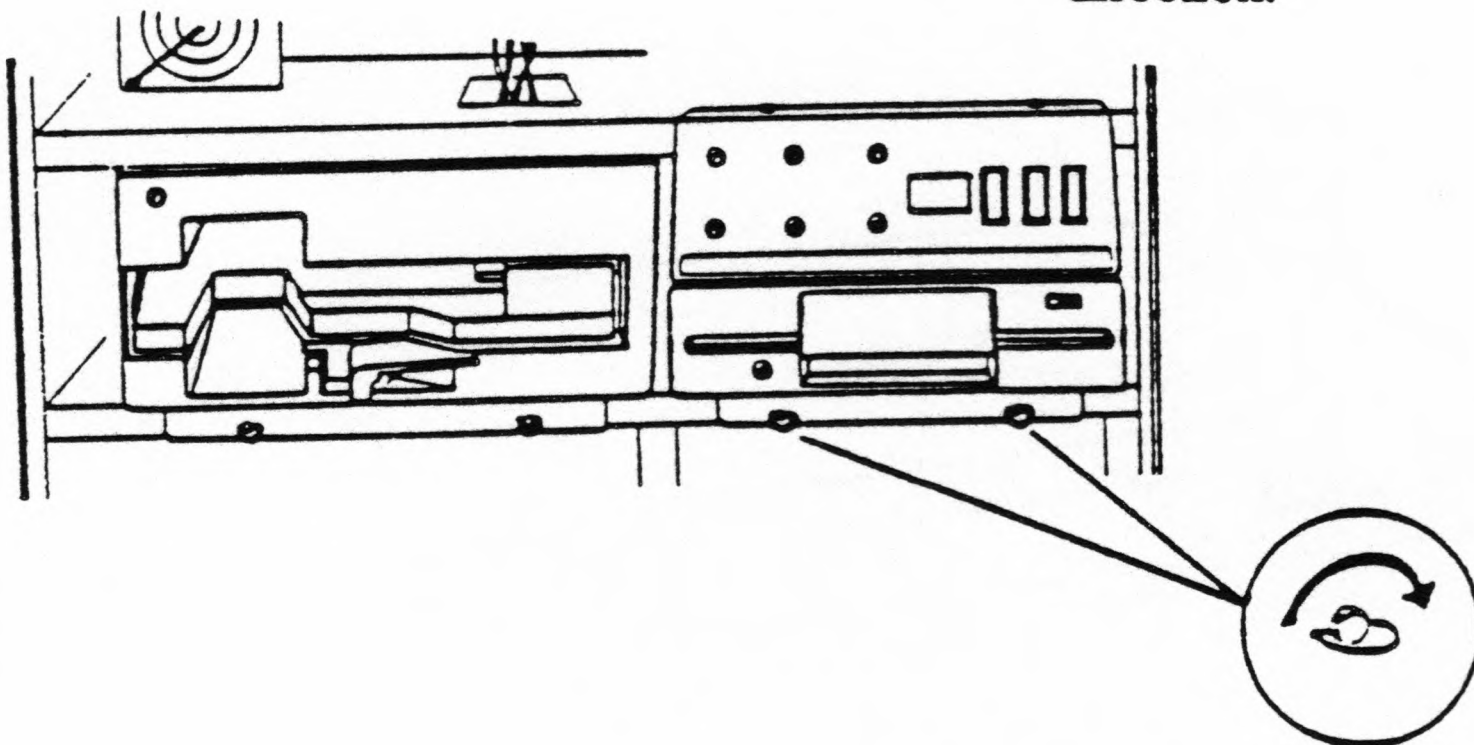
# REPLACING THE STREAMER UNIT

## Removal

1. The streamer unit is attached to the system by means of a metal frame and two ring bolts. Locate the two ring bolts under the tape unit and unscrew them in an anti-clockwise direction.
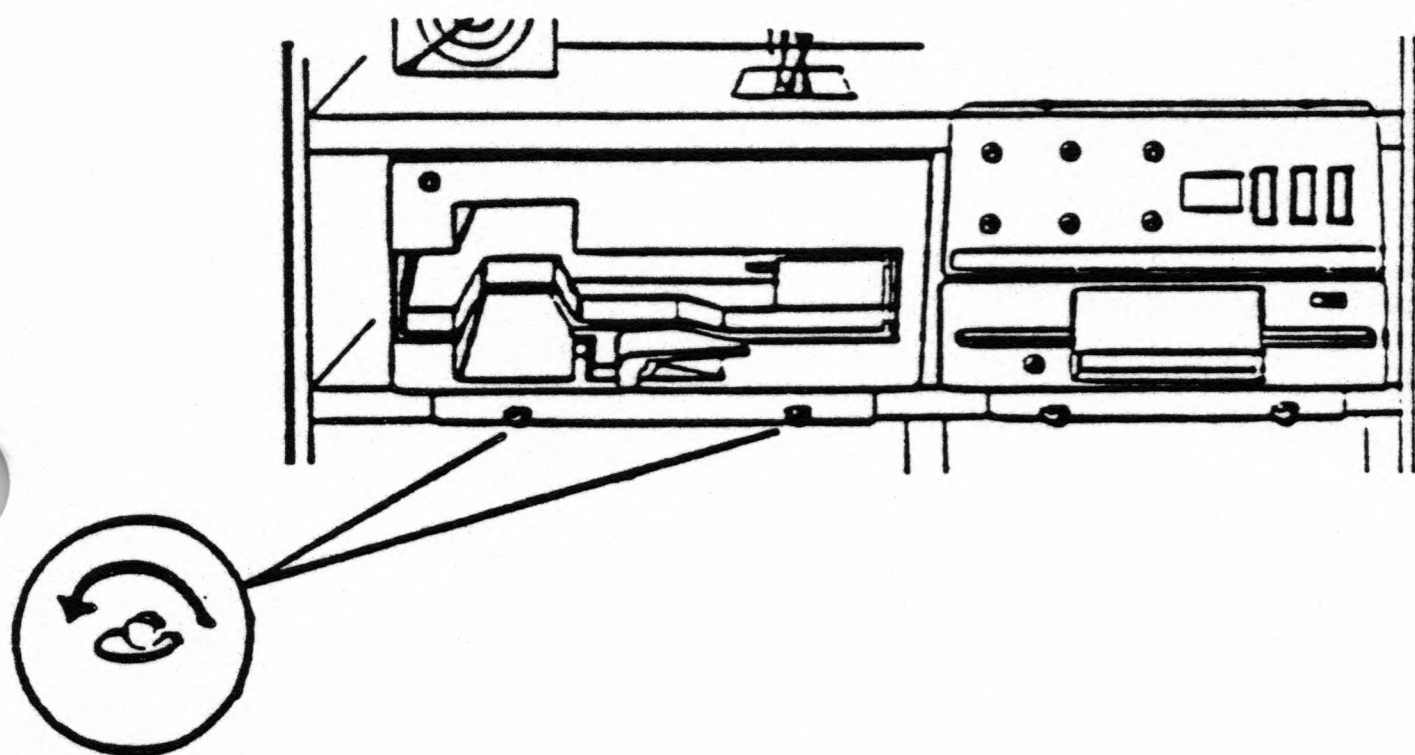
2. Slide back the streamer unit so that it is possible to locate the cables at the back of the unit.
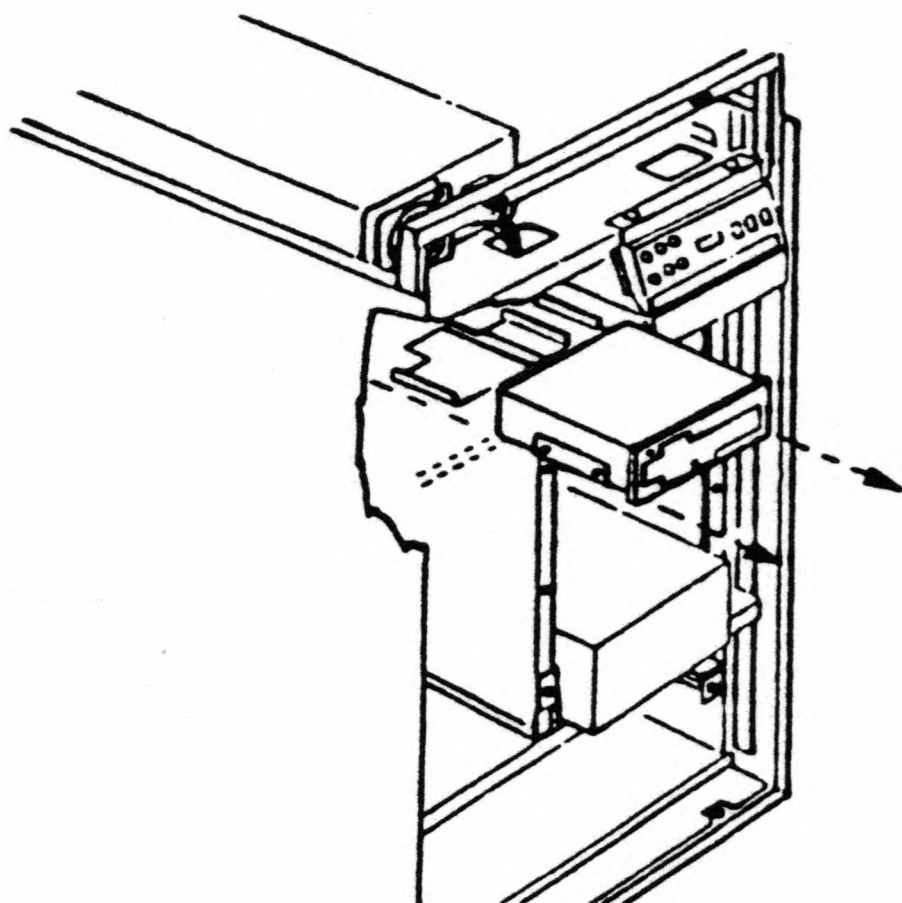
3. Disconnect the data cable, N01-STREAMER TAPE, and the power cable, N01 J-01. Take the streamer unit out and place it on a flat surface.
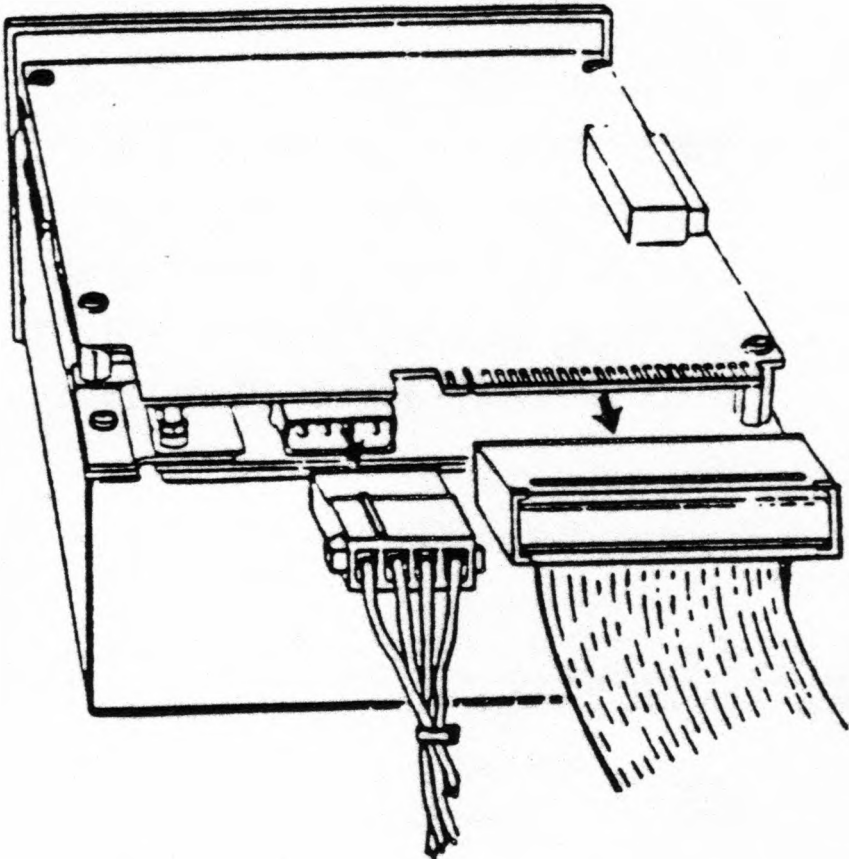
4. Locate the four screws, two on the right side and two on the left side, that attach the unit to the frame. Unscrew the streamer unit and lift it from the frame.
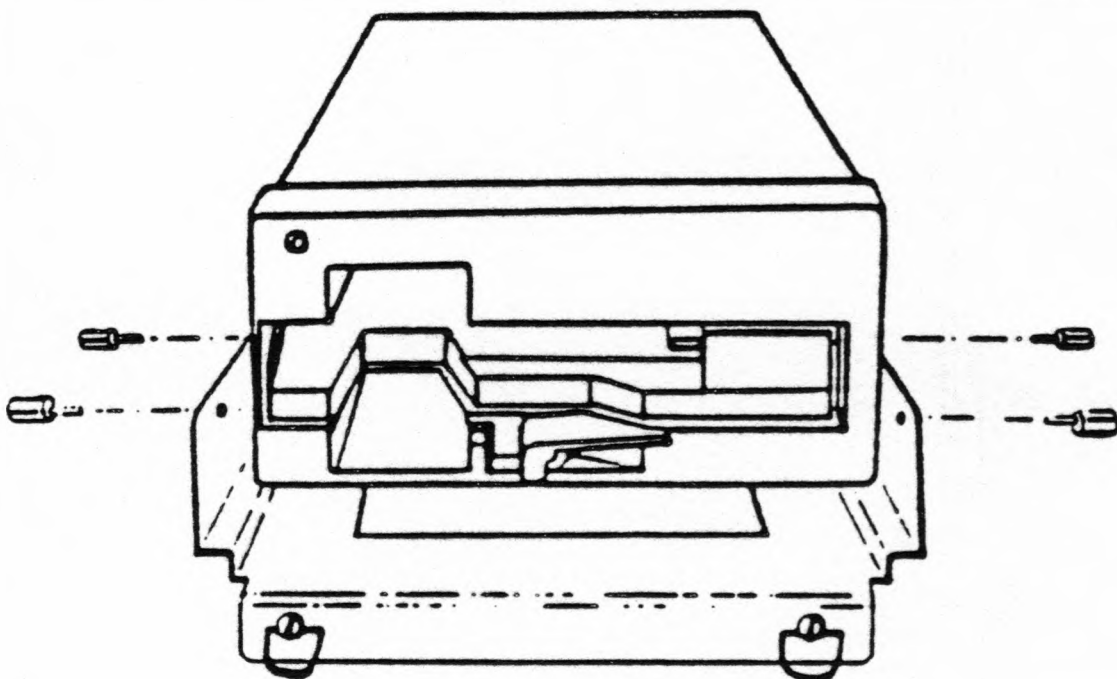
# Reinstallation

1. Using the figure, locate the personalizations contacts and verify that the jumpers conform to the positions in the following table:

| JUMPER | POSITION |
|--------|----------|
| W1 | OPEN |
| W2 | OPEN (if present) |
| W3 | CLOSED (if present) |
| W4 | CLOSED |
| W5 | CLOSED |
| W6 | CLOSED |
| W7 | CLOSED |
| W8 | OPEN |
| W9 | CLOSED |
| W10 | N/A |
| W11 | OPEN |
| W12 | CLOSED |
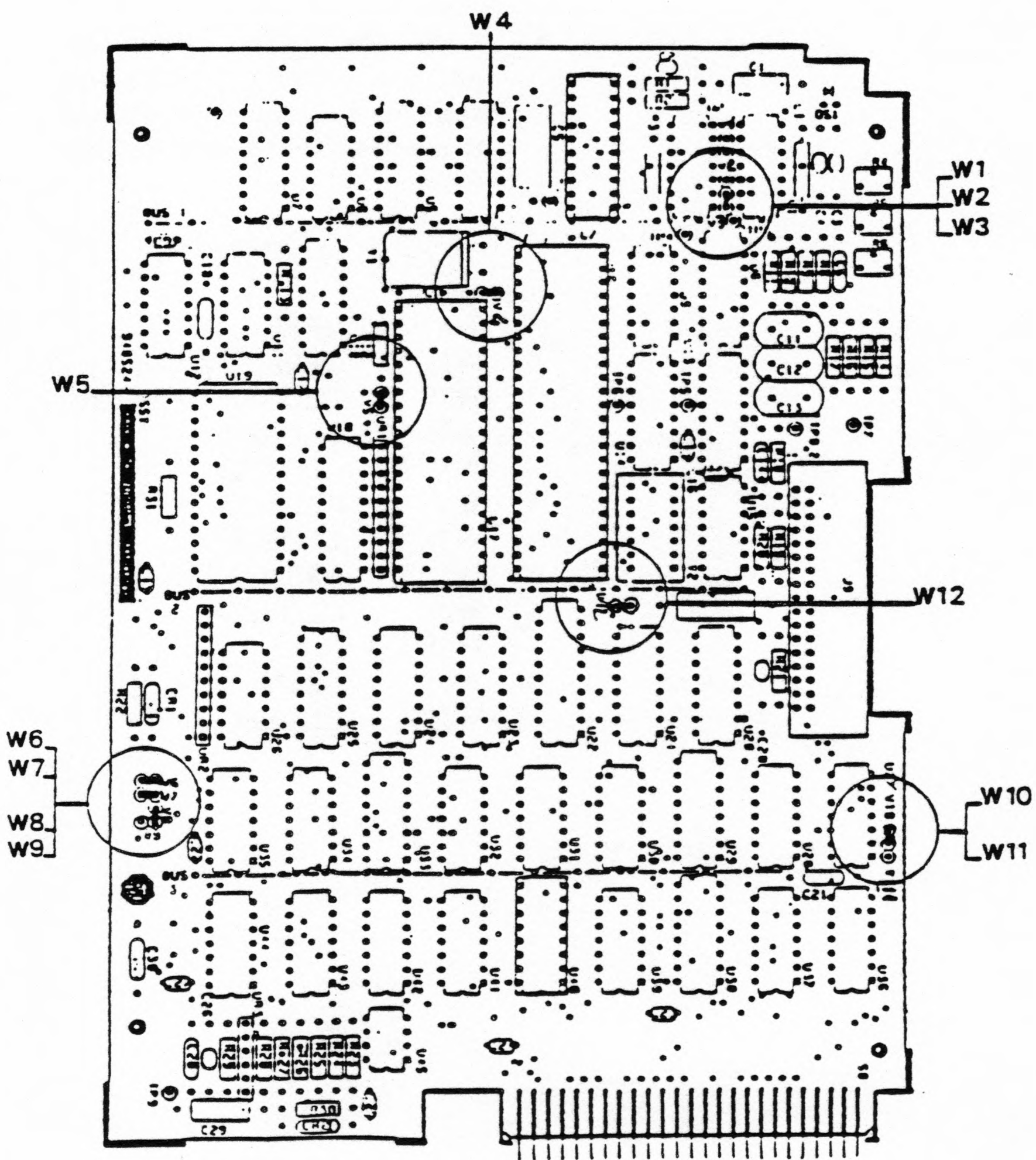
**2.** Place the streamer unit on the metal frame so that the four holes at the sides of the unit, two on the left and two on the right, are lined up with the holes at the sides of the frame. To attach the frame, use the four bolts that were previously unscrewed.
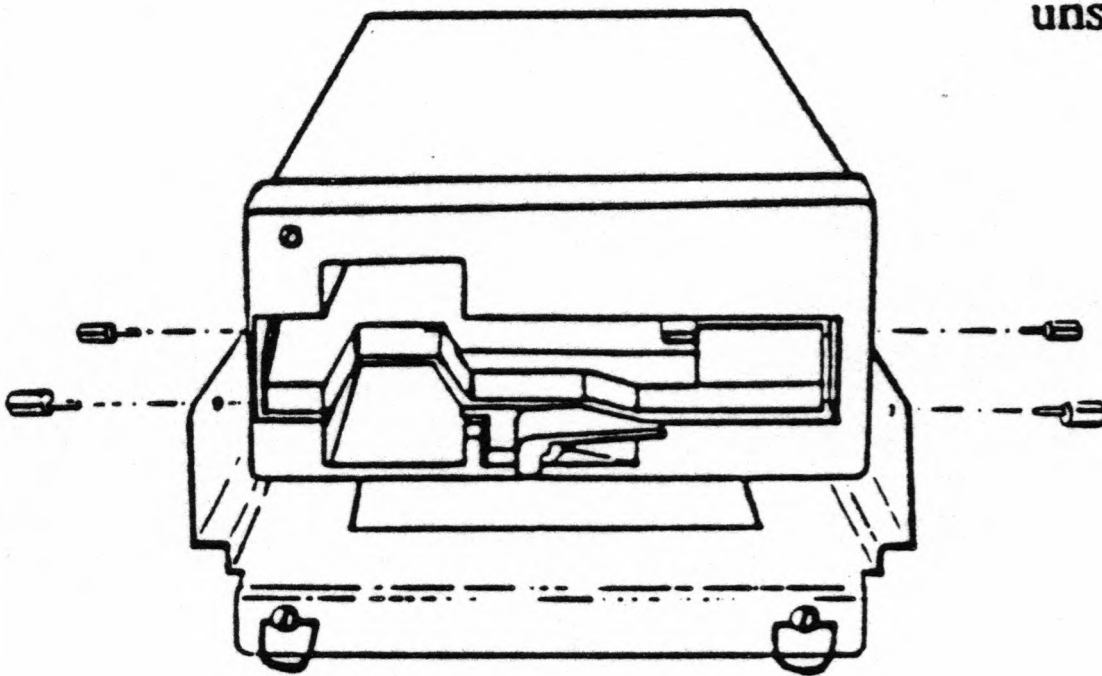


**3.** Insert the unit so that the metal frame can move freely in the runners provided.
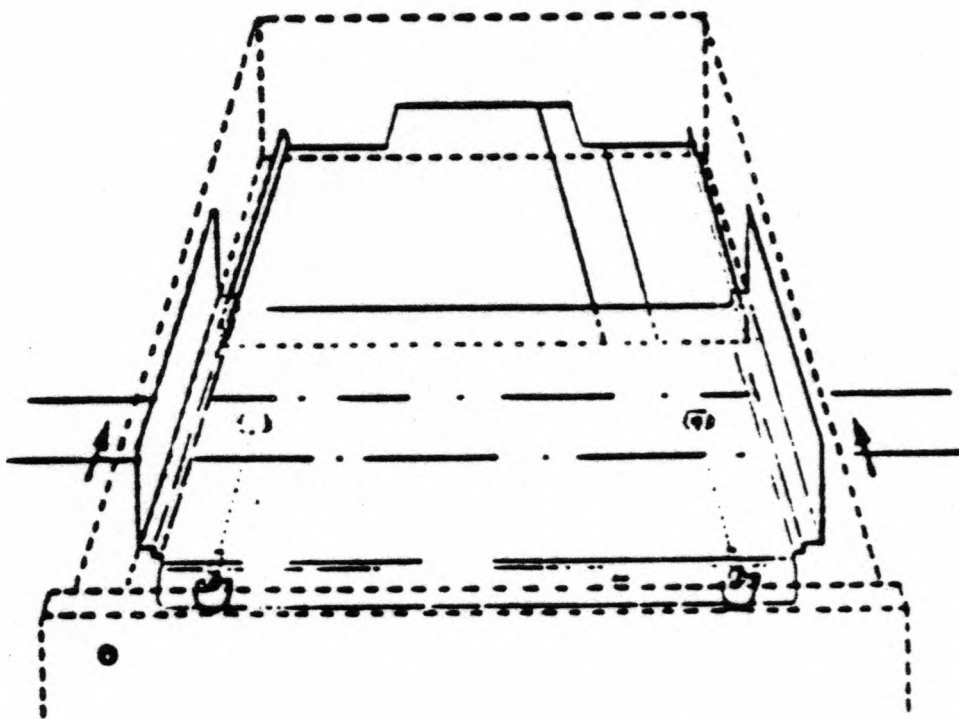
**4.** Connect the following cables to the rear of the system:

**A. N01-STREAMER TAPE** data cable to the pin connector

**B. N01 J-01** power cable to the power socket.
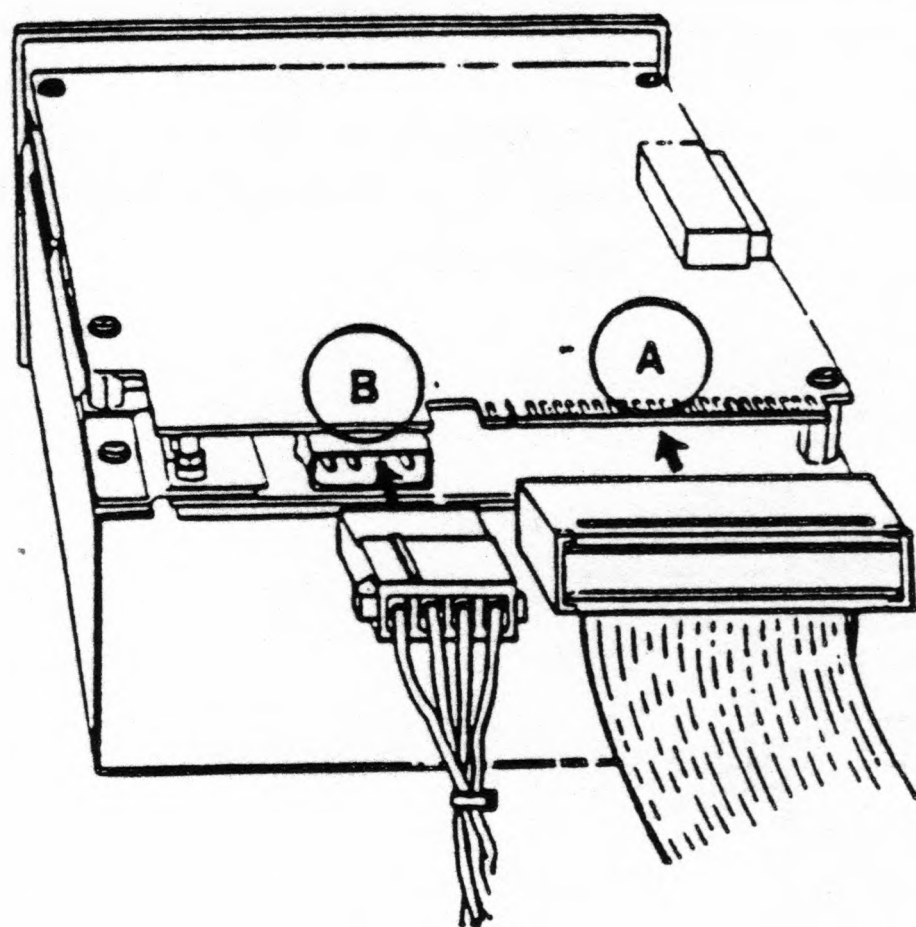
**5.** Insert the streamer unit in the system and fasten it by screwing the ring bolts on the frame in a clockwise direction.
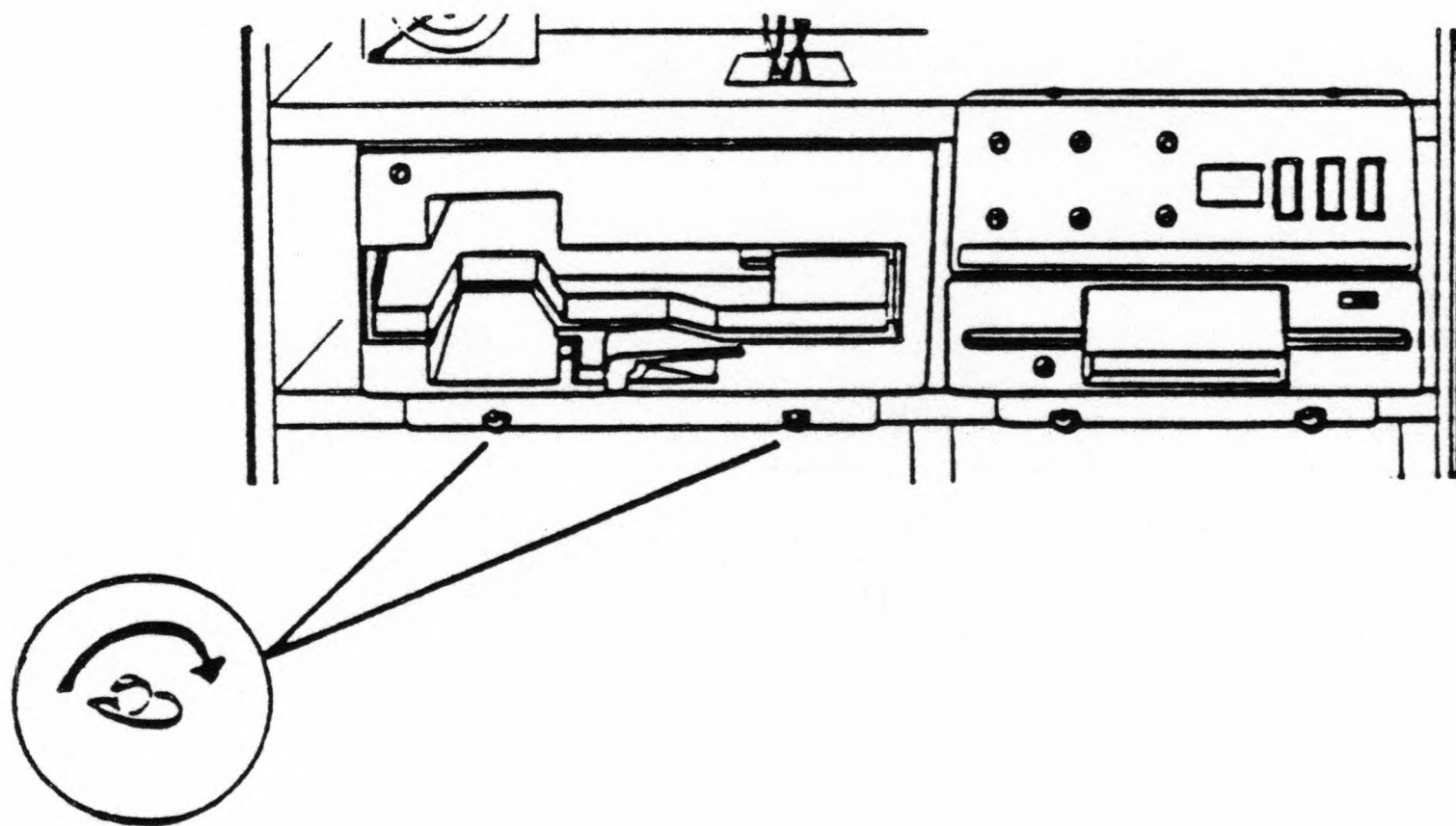
# REPLACING THE DISK UNIT

## Removal

1. With the help of the figure, locate the disk unit to be replaced:

| WREN 2 | ST506 | MAXTOR/WREN 3 ESDI (Controller ESDX) | | MAXTOR/WREN 3 ESDI (Controller DCEX) | |
|--------|-------|------|------|------|------|
| D01 | D_DK00 | D01 | E_DK00 | D01 | E_DK00 |
| D02 | D_DK01 | D02 | E_DK01 | D02 | E_DK01 |
| D03 | D_DK02 | D03 | E_DK02 | D03 | E_DK02 |
| D04 | D_DK03 | D04 | E_DK04 | D04 | E_DK03 |
| D05 | D_DK04 | D05 | E_DK05 | D05 | E_DK04 |
| D06 | D_DK05 | D06 | E_DK06 | D06 | E_DK05 |
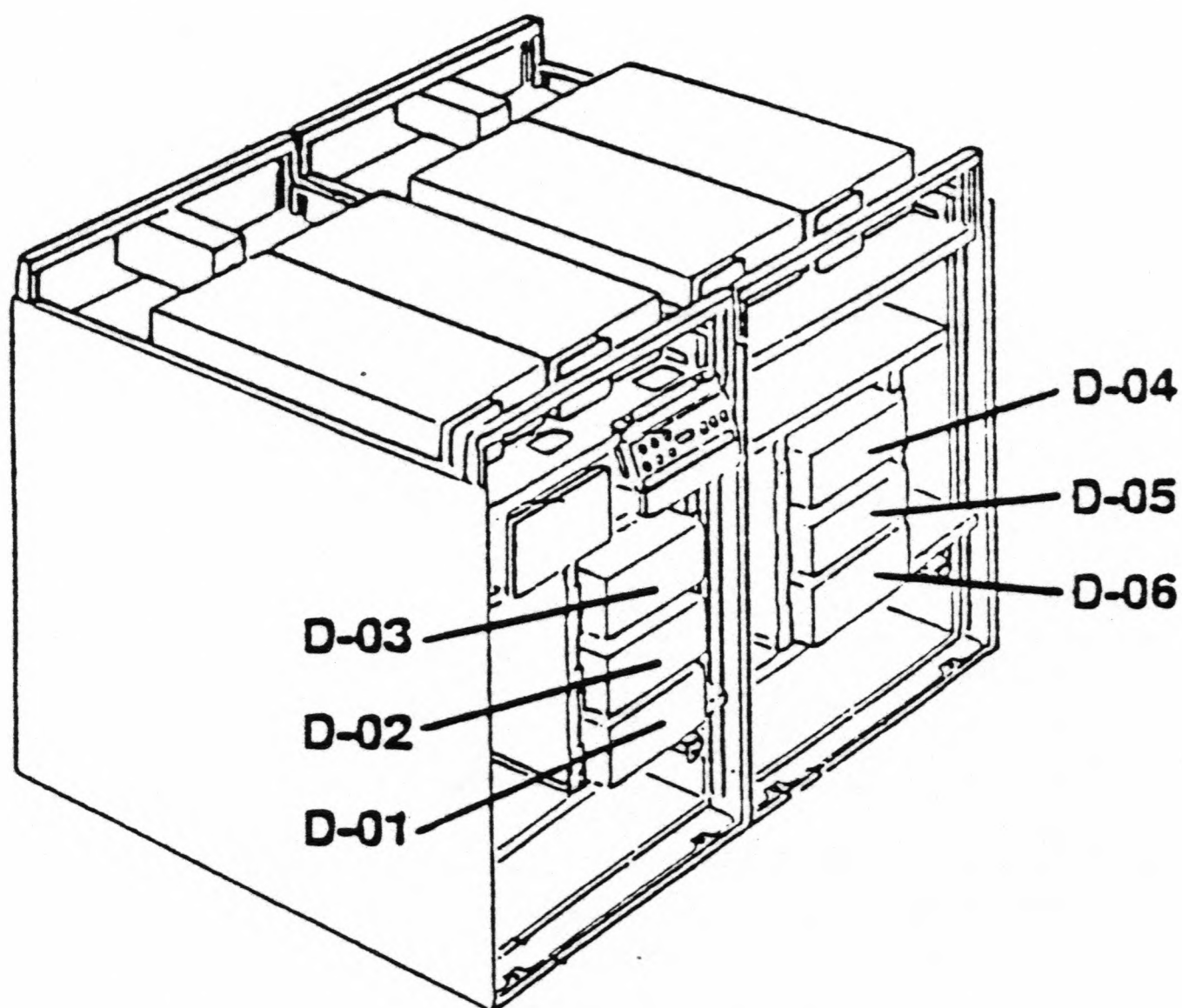
**2.** Unplug the following cables from the disk unit:

*Disk 0*

A. D01-COMM DISKS command cable
B. D01-DISK 1 data cable
C. D01-J-01 power cable

*Disk 1*

A. D02-COMM DISKS command cable
B. D02-DISK 2 data cable
C. D02-J-01 power cable

*Disk 2*

A. D03-C0MM DISKS command cable
B. D03-DISK 2 data cable
C. D03-J-01 power cable
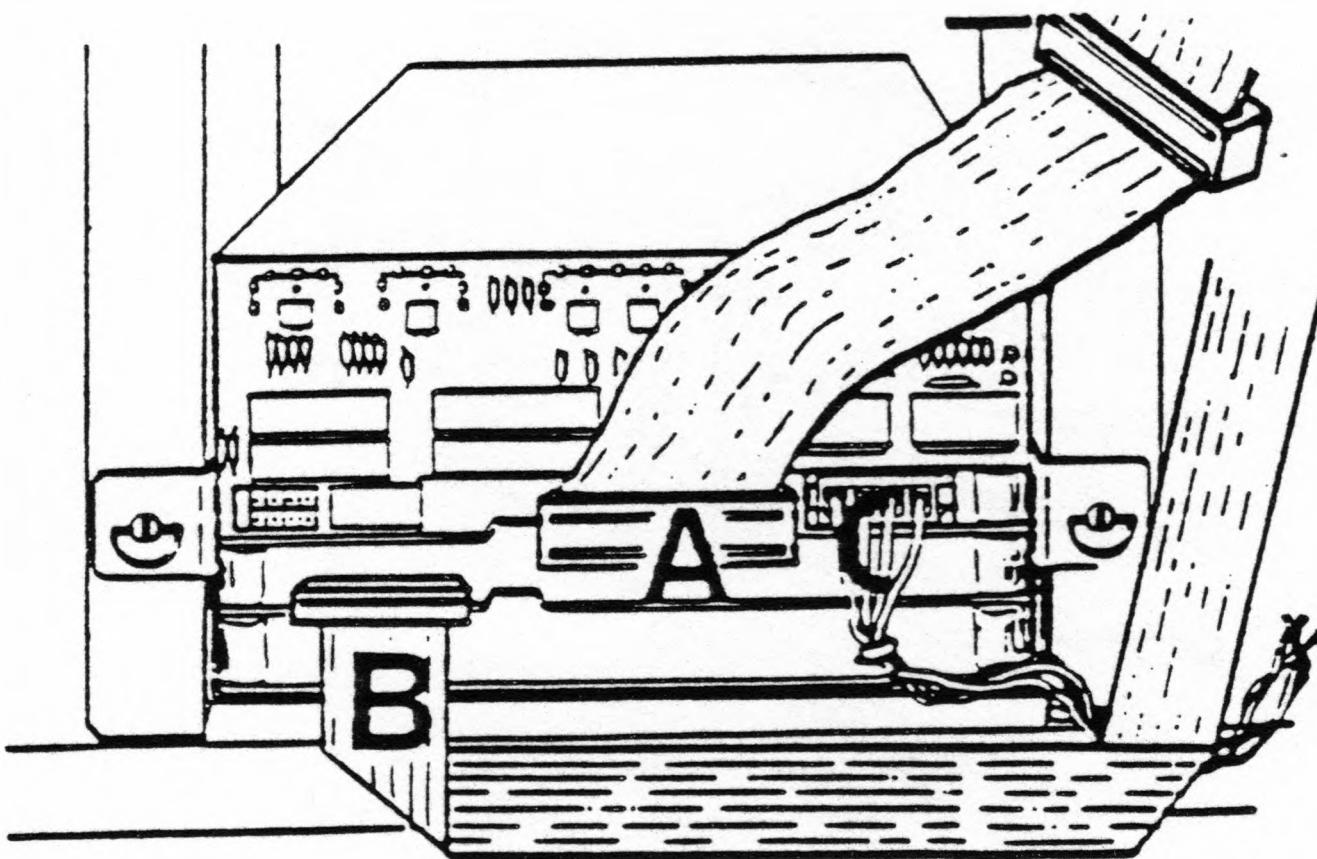
**3.** The disk unit is fixed to the system with a metal frame and two ring bolts. Locate the two ring bolts on the disk unit side of the system and unscrew them in an anti-clockwise direction.
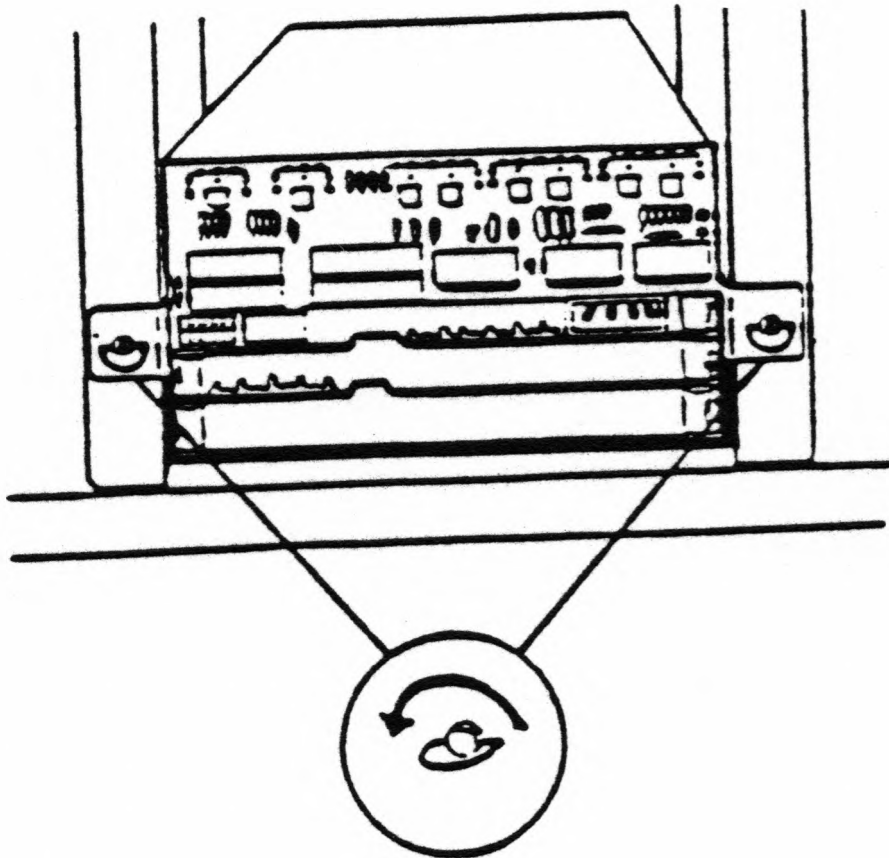
**4.** Remove the disk unit. Place it on a flat surface.
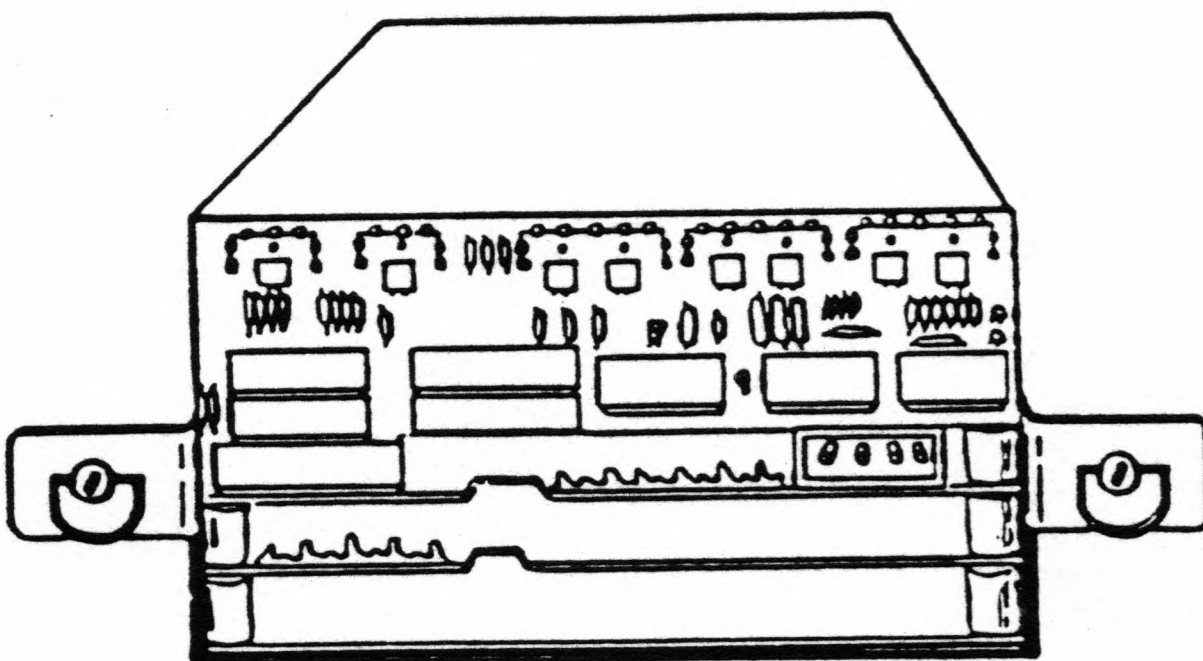
5. Locate the screws in the side of the frame, two on the right and two on the left. Unscrew them with a box spanner and keep them in a safe place. Lift out the disk unit.
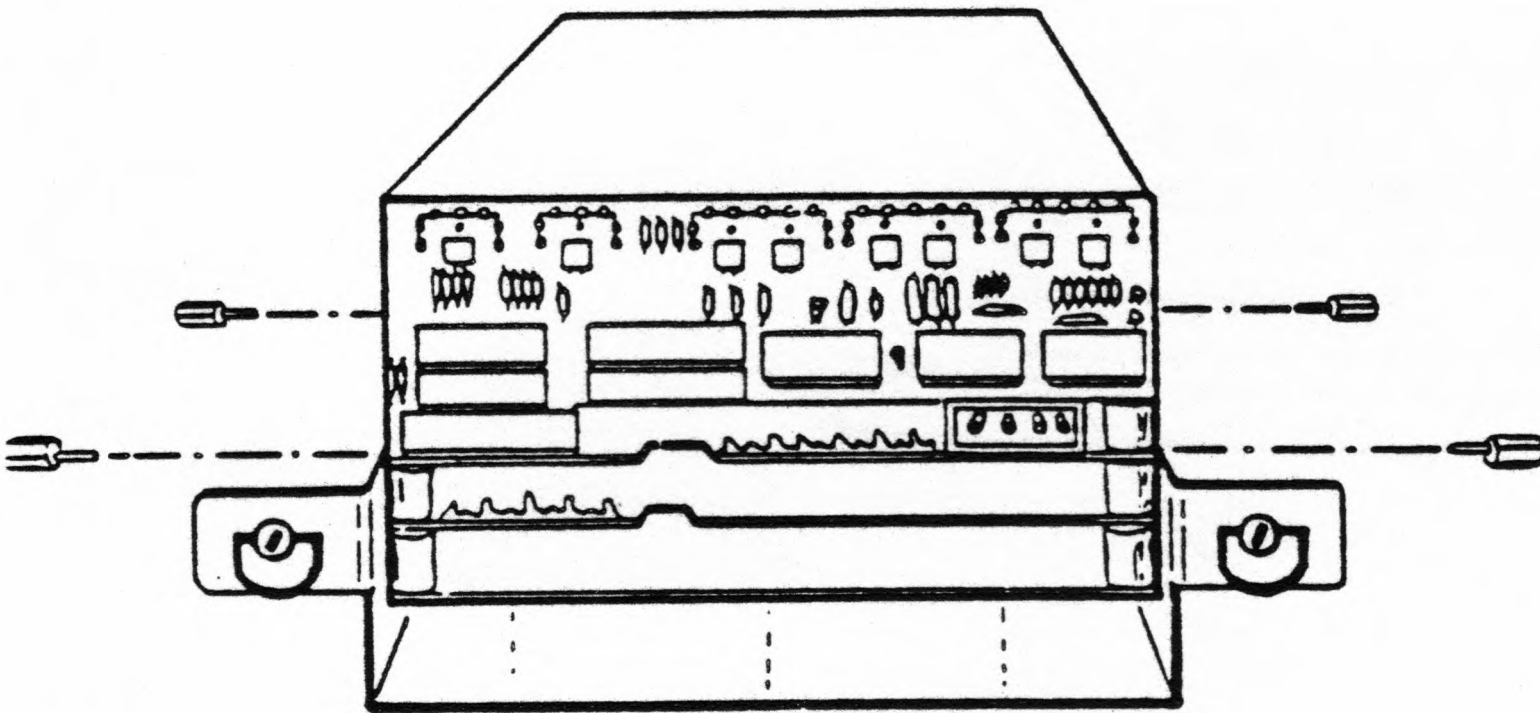


6. If the disk concerned is Disk 0 (System Disk), remove the resistance stopper and put it in a safe place.
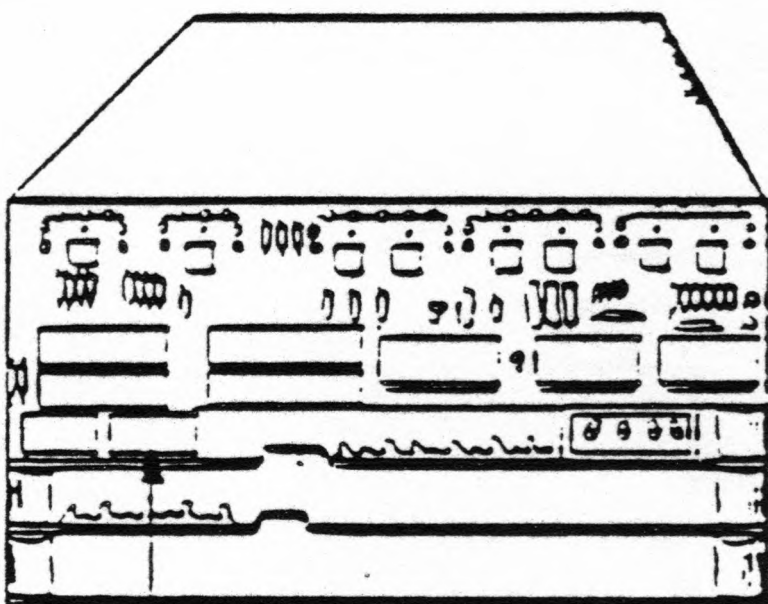
# Reinstallation

1. Locate the contacts on the disk unit and personalize the disk as follows:
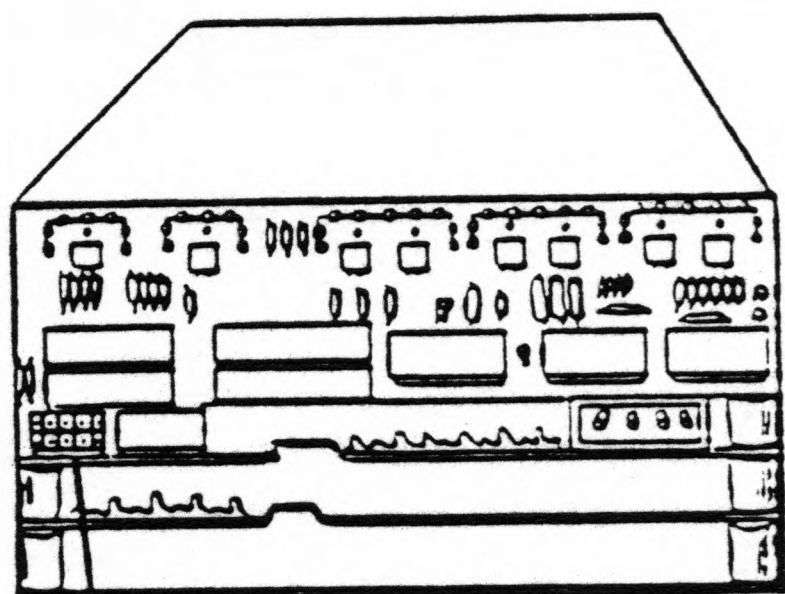
   A. Disk 0: insert the jumper at position 1

   B. Disk 1: insert the jumper at position 2

   C. Disk 2: insert the jumper at position 3
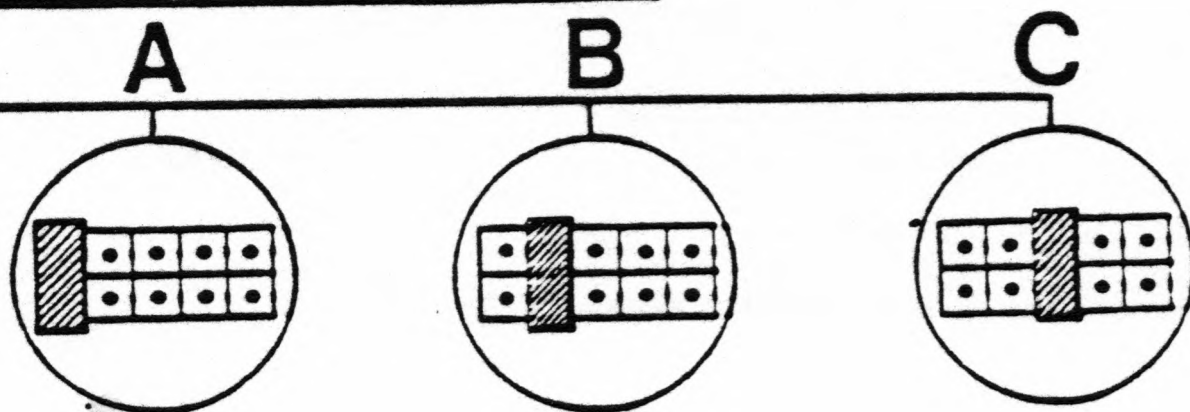
2. If the disk concerned is Disk 0, reinsert the resistance stopper, if it was removed.
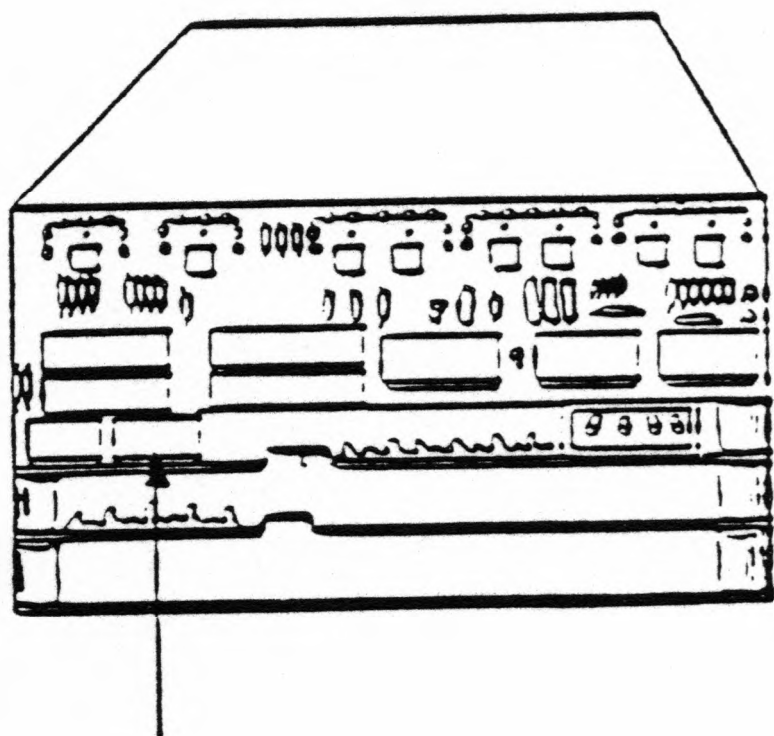
**3.** Rest the disk unit against the metal frame. Align the four holes in the disk unit, two on the left and two on the right, with the four holes in the frame. Fix the disk unit to the frame with the bolts that were previously unscrewed.
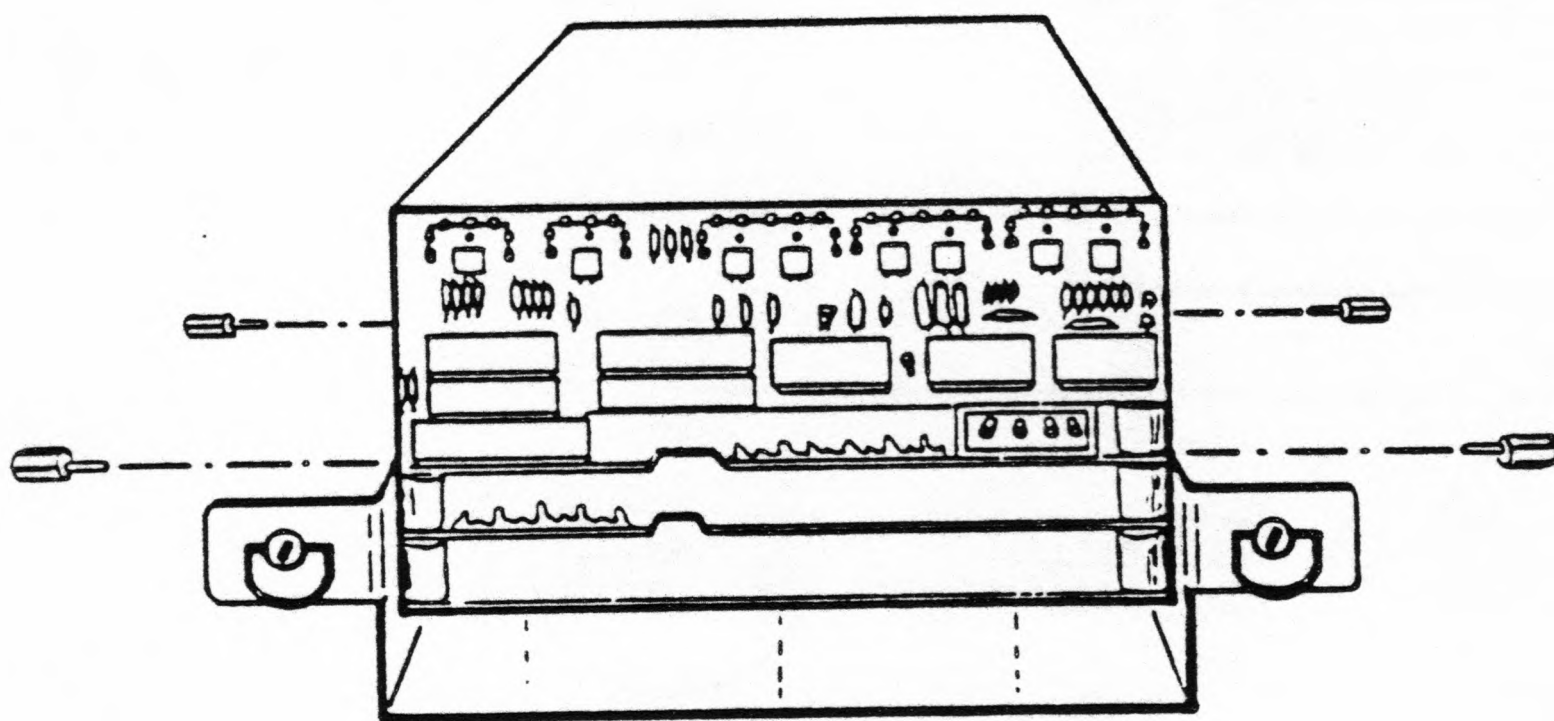
**4.** For the *MAXTOR* disk, remove the four spacers from the caging of the disk.
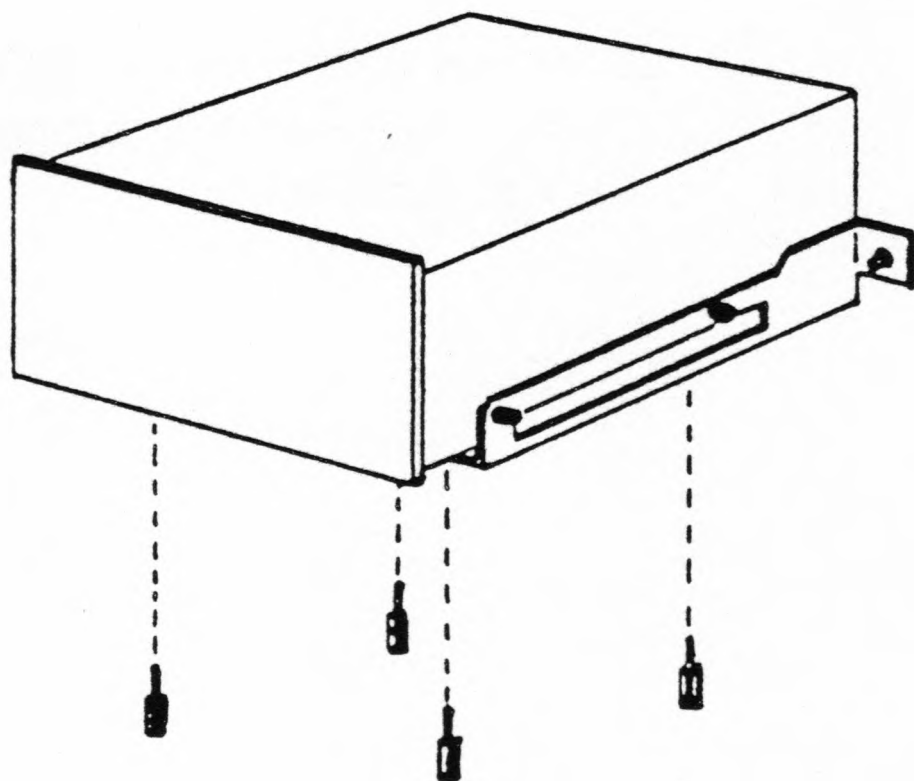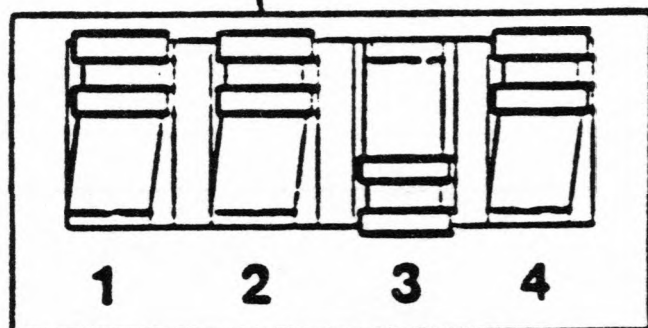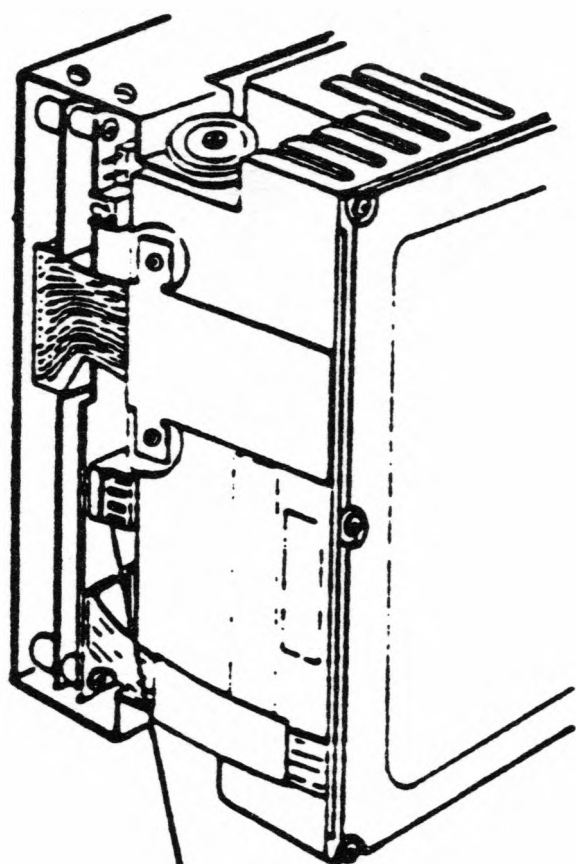
**5.** For *WREN3* disks with *ESDI* interface, locate the personalization microswitches on the front part of the disk (opposite the side containing the plugs for the cables). The front cover panel of the disk must be removed, if present. Set the microswitches as follows:

*WREN3 ESDI*

| | |
|---|---|
| 1 | OFF |
| 2 | OFF |
| 3 | ON |
| 4 | OFF |

Note that *OFF* is the upper position.

WREN3
ESDI

6. For the Maxtor disk locate the jumpers on the disk under the wrapping and position them as follows:

| JP16 | ON  | JP24 | OFF | JP32 | ON  |
|------|-----|------|-----|------|-----|
| JP17 | OFF | JP25 | ON  | JP33 | ON  |
| JP18 | ON  | JP26 | OFF | JP34 | ON  |
| JP19 | OFF | JP27 | OFF | JP35 | ON  |
| JP20 | OFF | JP28 | OFF | JP36 | OFF |
| JP21 | OFF | JP29 | OFF |      |     |
| JP22 | ON  | JP30 | OFF |      |     |
| JP23 | OFF | JP31 | OFF |      |     |



TERMINATING RESISTORS

DRIVE SELECTION

JP32 - JP36

JP24 - JP31

JP16 - JP23
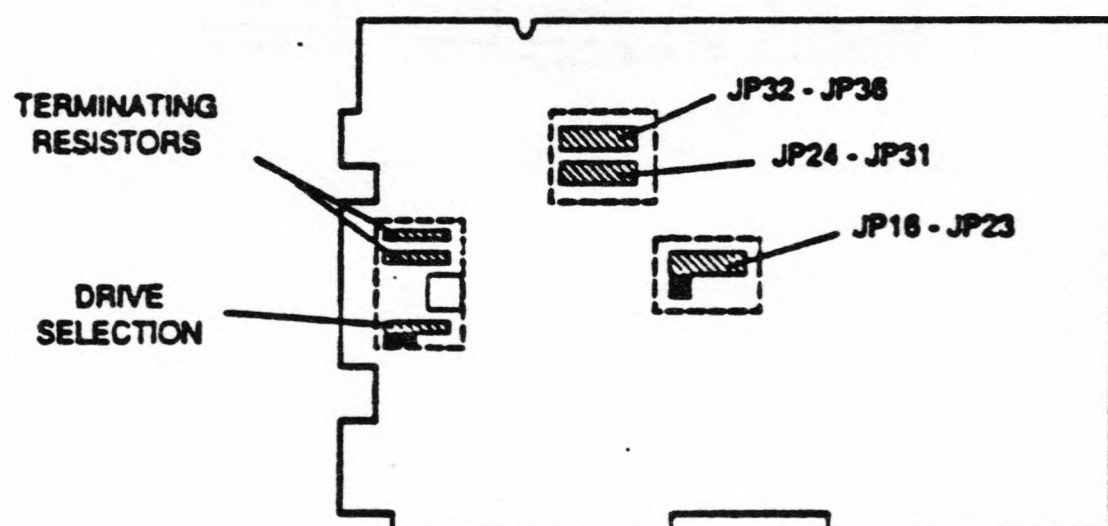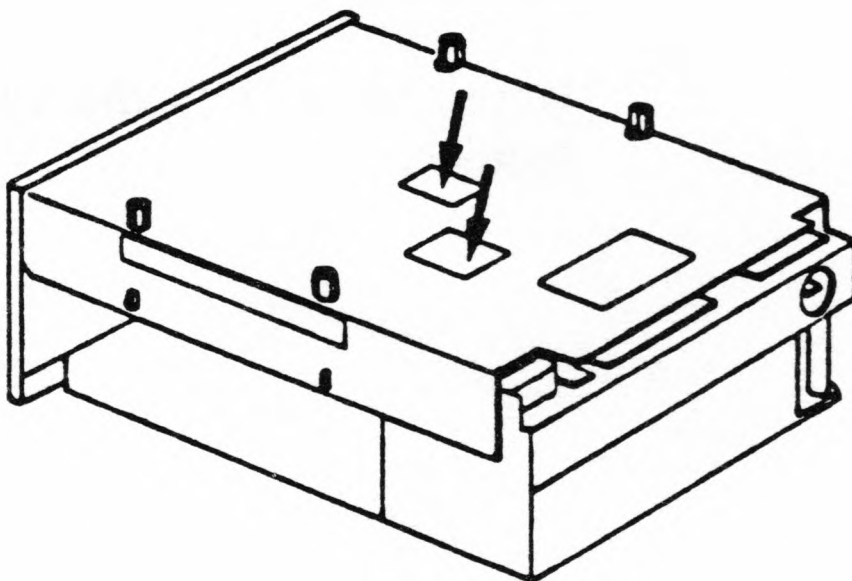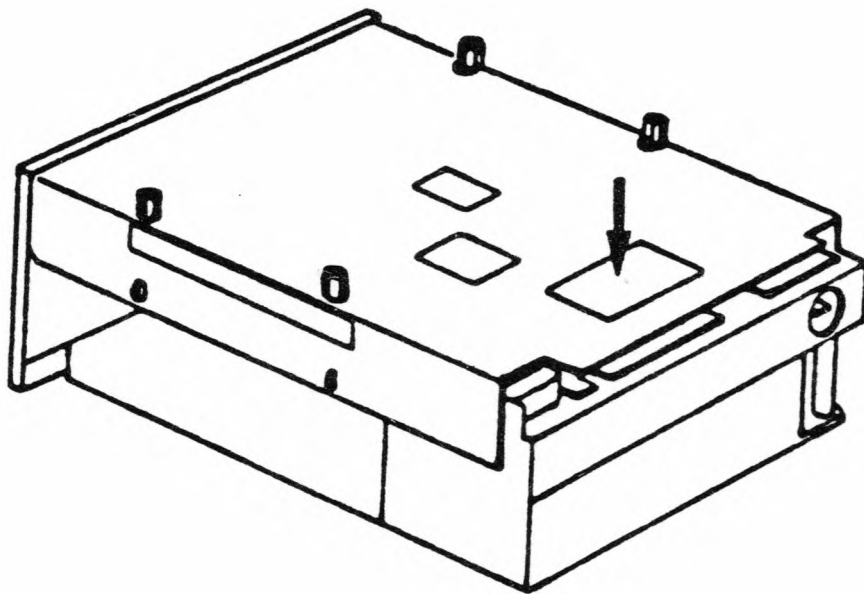
**6a.** According to the position of the disk unit in the cabinet a jumper must be set in the following positions:

| | |
|---|---|
| DS1 | first disk unit (position 0) |
| DS2 | second disk unit (position 1) |
| DS3 | third disk unit (position 2) |

## NOTE

*The resistance stoppers must remain only on the last of the disk units which are connected to the flat cable.*

TERMINATING RESISTORS

DRIVE SELECTION

JP32 - JP36

JP24 - JP31

JP16 - JP23
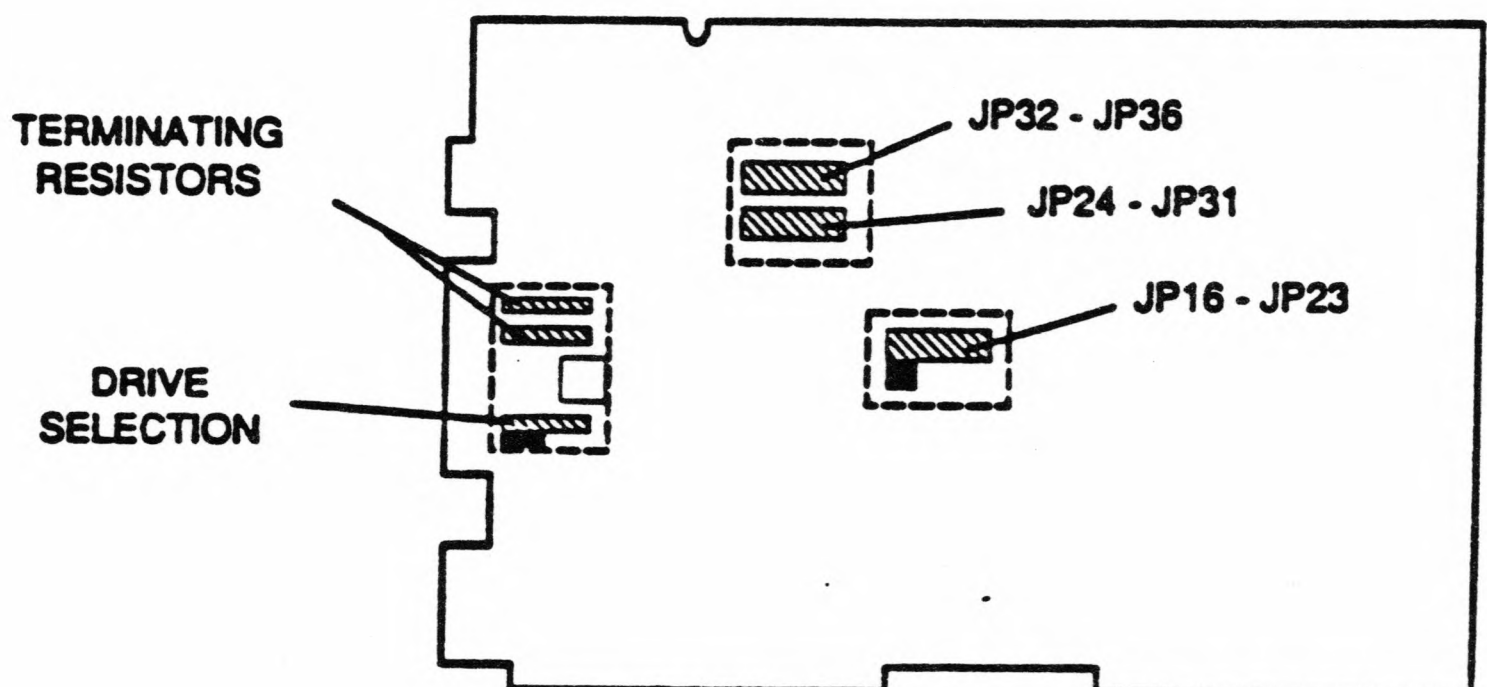
7. With the help of the figure,
   locate the position in which the
   disk unit is to be reinstalled.
   Insert the disk unit in the
   relevant position.

| WREN2 | ST506 | MAXTOR/WREN3 ESDI (controller ESDX) | | MAXTOR/WREN3 ESDI (Controller DCEX) | |
|--------|---------|--------|--------|--------|--------|
| D01 | D_DK00 | D01 | E_DK00 | D01 | E_DK00 |
| D02 | D_DK01 | D02 | E_DK01 | D02 | E_DK01 |
| D03 | D_DK02 | D03 | E_DK02 | D03 | E_DK02 |
| D04 | D_DK03 | D04 | E_DK04 | D04 | E_DK03 |
| D05 | D_DK04 | D05 | E_DK05 | D05 | E_DK04 |
| D06 | D_DK05 | D06 | E_DK06 | D06 | E_DK05 |

**8.** Fix the disk unit to the system by screwing in a clockwise direction the two ring bolts located on the sides of the frame attached to the unit.
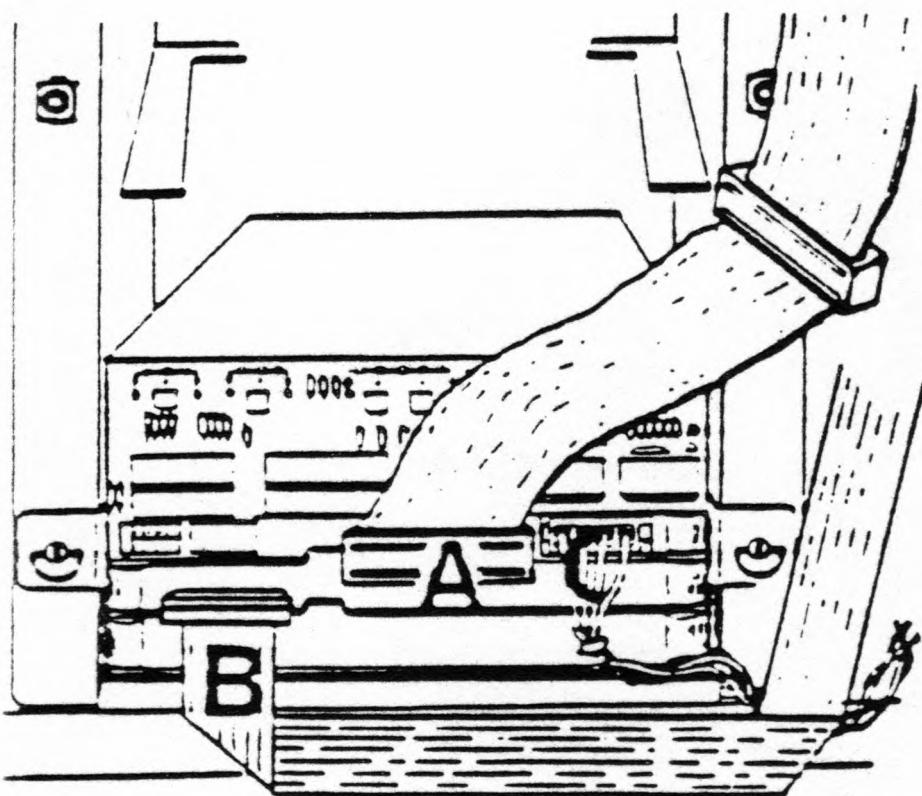
**9.** Plug in the following cables:

*Disk 0*

A.   D01-COMM DISKS command cable;
B.   D01-DISK 1 data cable;
C.   D01-J-01 power cable.

*Disk 1*

A.   D02-COMM DISKS command cable;
B.   D02-DISK 2 data cable;
C.   D02-J-01 power cable.

*Disk 2*

A.   D03-COMM-DISKS command cable:
B.   D03-DISK 3 data cable;
C.   D03-J-01 power cable.

# REPLACING A BOARD

## Removal

1. Using the diagram of the board cage, locate the board to be replaced. Disconnect the cables from the plugs on the board.

*Central Unit*

| 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | MEM 3 | MEM 2 | MEM 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EX0 | DCS0 | VME | VME | SPX3 | SPX2 | SPX1 | SPX0 | SCX | CHX0 | CPX0 | SE2 | SE2 | SE2 |
| | o | | | o | o | o | o | | | | o | o | o |
| TER | DCE0 | SP1 | SP1 | LP03 | LP02 | LP01 | LP00 | | | | SM4 | SM4 | SM4 |
| | | o | o | | | | | | | | o | o | o |
| | | SP2 | SP2 | | | | | | | | SM8 | SM8 | SM8 |
| | | | | | | | | | | | o | o | o |
| | | | | | | | | | | | MF4 | MF4 | MF4 |
| | | | | | | | | | | | o | o | o |
| | | | | | | | | | | | MF8 | MF8 | MF8 |

*Expansion Unit*

| 1 MEM | 2 MEM | 3 MEM | 1 | 2 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SE2 | SE2 | SE2 | CPX1 | CHX1 | SPX4 | SPX5 | SPX6 | SPX7 | VME | VME | DCS1 | |
| o | o | o | | | o | o | o | o | | | o | |
| SM4 | SM4 | SM4 | | | LP04 | LP05 | LP06 | LP07 | SP1 | SP1 | DCE1 | |
| o | o | o | | | | | | | o | o | | |
| SM8 | SM8 | SM8 | | | | | | | SP2 | SP2 | | |
| o | o | o | | | | | | | | | | |
| MF4 | MF4 | MF4 | | | | | | | | | | |
| o | o | o | | | | | | | | | | |
| MF8 | MF8 | MF8 | | | | | | | | | | |

**2.** For the second or third memory expansion board, disconnect the 78139359-001 cable from the first memory expansion board, position MEM1, and the CPX, position 1.
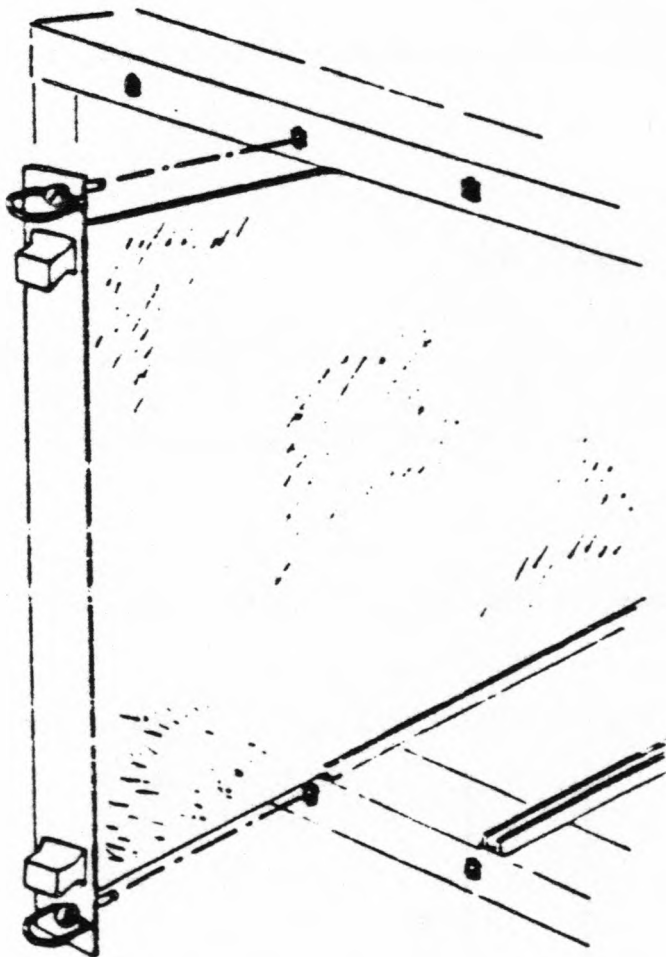


**3.** Locate the two ring bolts that attach the board to the system and unscrew them in an anti-clockwise direction. Remove the board from the system, handling it by the tabs at the edges.

If the board is not to be replaced immediately with a new board, insert a dummy board in the vacant position.

**4.** For SC1 boards with removable EPROM, remove the EPROM connected to the "BOOT EPROM" connector and keep it in a safe place. (It will later be reconnected to the new SC1 board.).

## Reinstallation

1. In the case of boards used for supporting *SMD* disks, and external tapes, locate the JA personalization pins on the boards. Check that the boards have the following personalization:

*CENTRAL AND EXPANSION UNIT:*

*RDC1 board:* one jumper in position 5 (XYLOGIC 752 on the first cabinet)

*RDC2 board:* jumpers in position 5 and 4 (XYLOGIC 752 on the second cabinet)

*TAC board:* one jumper in position 6 (XYLOGIC 772)

JA

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F | E | D | C | B | A | 9 | 8 | 7 | 6 | 5 | 4 |
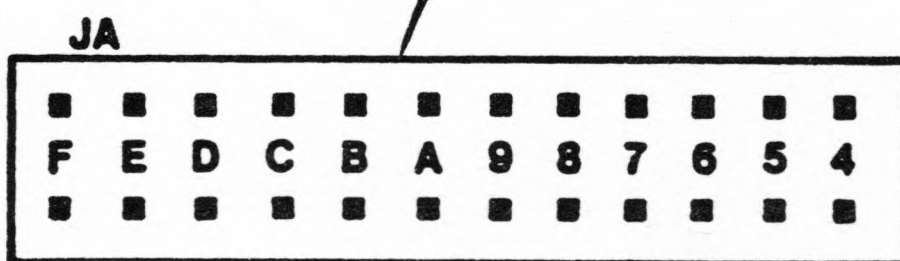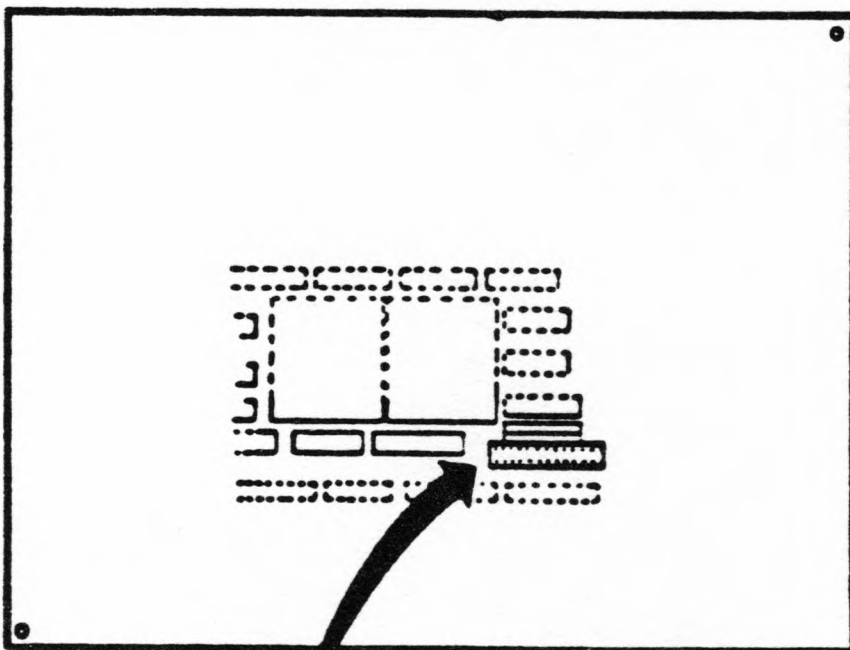
**2.** For LP0 board, it is necessary to personalize lines 2 and 3, depending on whether the lines are to be used for synchronous or asynchronous connections. Locate the personalization pins and position the jumpers according to the following scheme:



LINE 0

LINE 1

LINE 2

LINE 3

LINE 4

LINE 5

**Q03A**

JUMP03A (Q03A POSITION) TABLE

| JUMP ON | DESCRIPTION |
|---------|-------------|
| 01 - 02 | ASYNC. MODE |
| 02 - 03 | SYNC. MODE |

ASYNC.

LINE #2

**K03C**

JUMP03A (K03C POSITION) TABLE

| JUMP ON | DESCRIPTION |
|---------|-------------|
| 01 - 02 | ASYNC. MODE |
| 02 - 03 | SYNC. MODE |

SYNC.

LINE #3
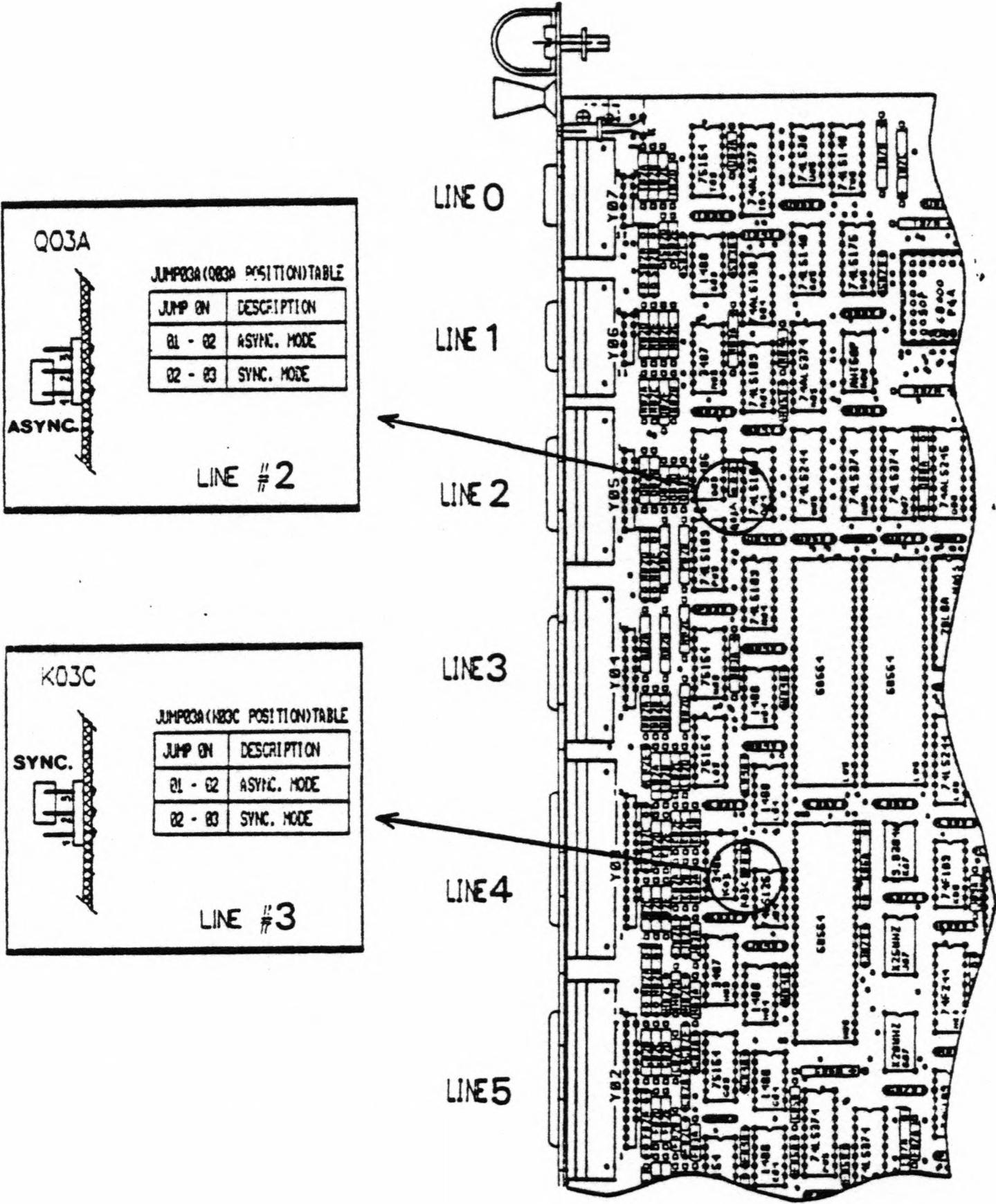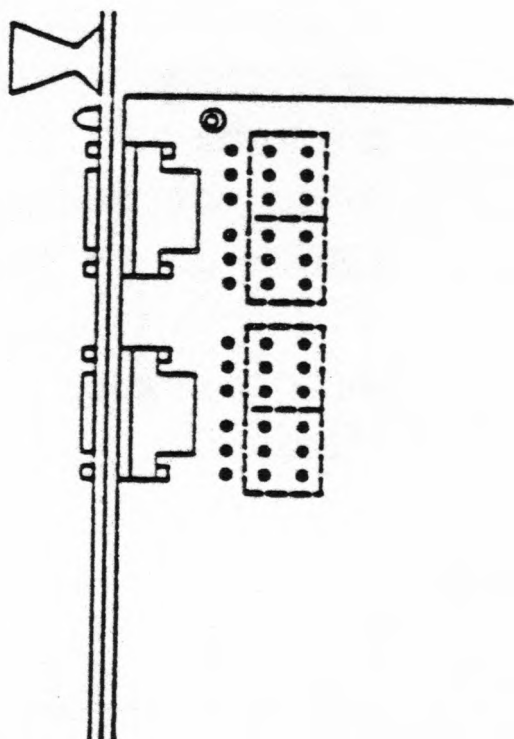
**2.1** In case of an SP2 board it is necessary to select the interface type for the first four and the last four lines (starting from the top).

With help of the figure locate the personalization jumpers for the lines and select the interface type as shown below.



RS 232          RS 422
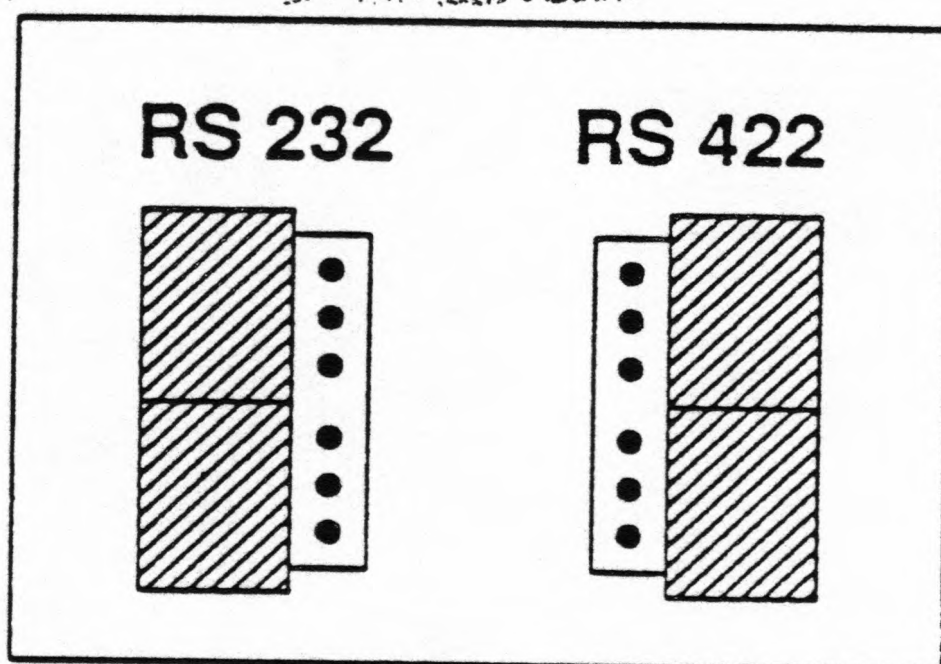
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**3.** In case of SC1 board, personalize it as follows:

Locate the personalization microswitches used for the connection with the emergency battery (UPS) and personalize them according to the following instructions:

Microswitch A is used to enable or disable the battery time-out. To disable the battery, set it to the right position. In this case, if there is a power failure, the system will receive power from the battery, while sufficient charge remains.

To enable the time-out, microswitch A must be set to the left position and microswitch B must be set as follows:

- To the right if the operating system is UNIX (time-out value: 3.5 minutes);

- To the left if the operating system is PICK (time-out value: 7 minutes);
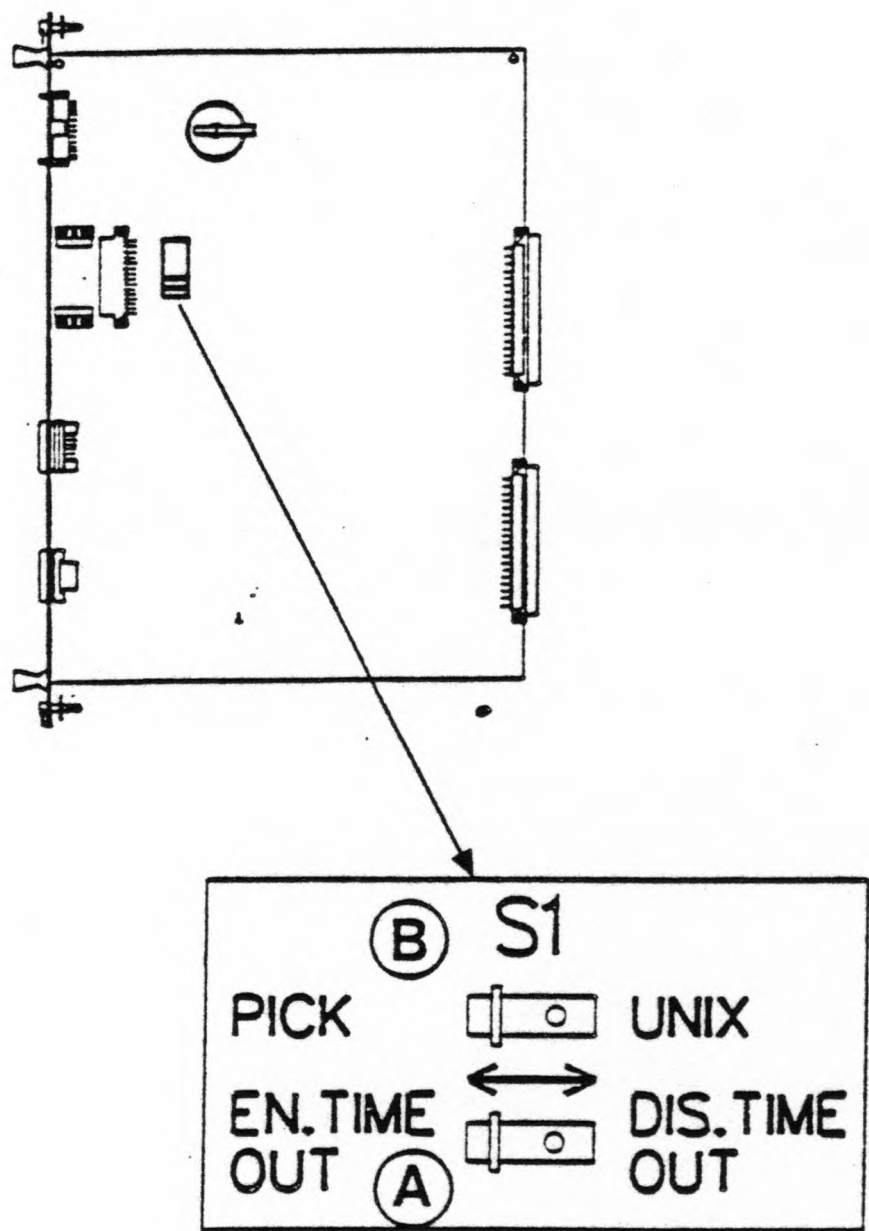
**3.1** If the board to be replaced is a DCE board locate the personalization microswitches on the board and position them as shown in the figures below.
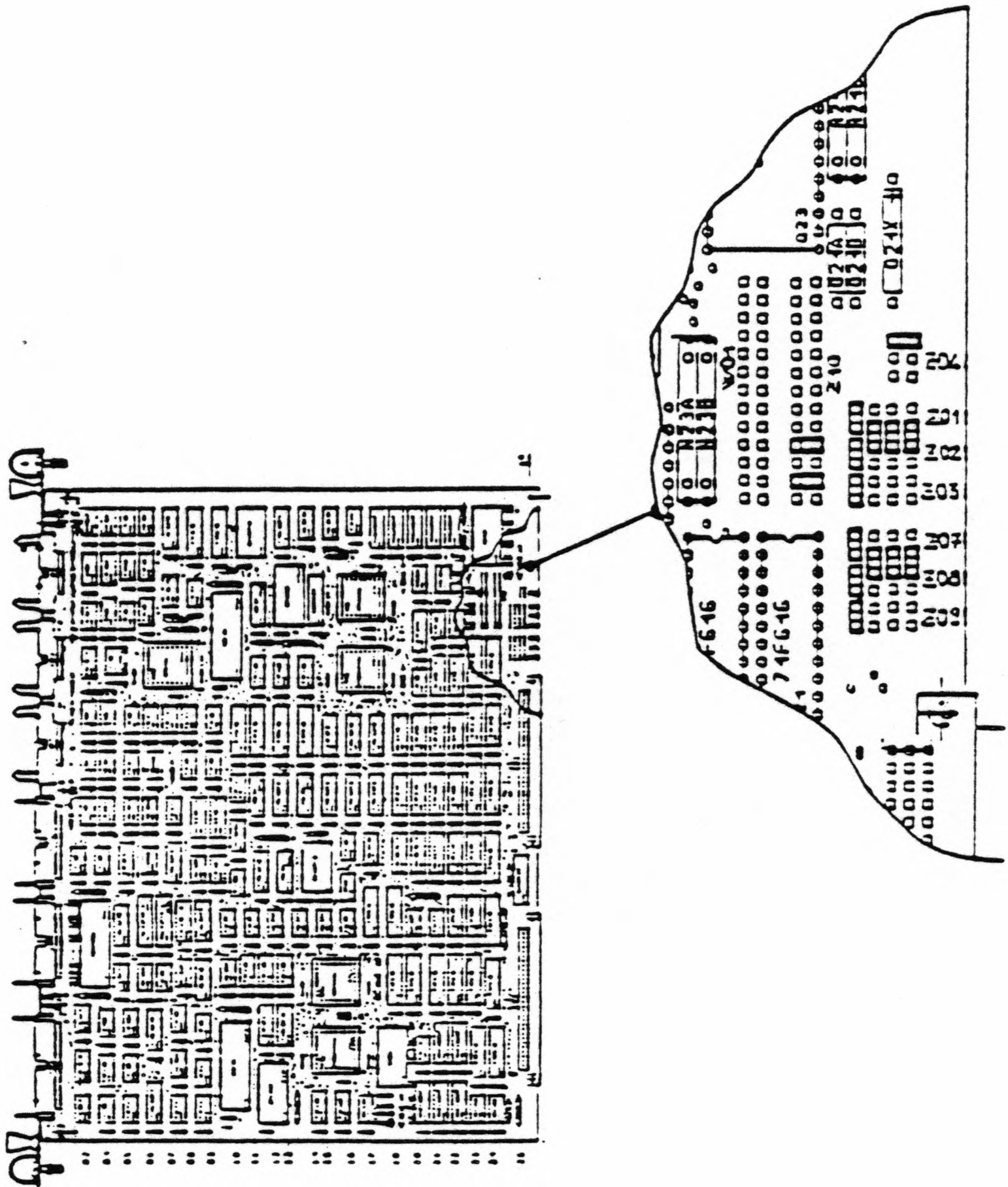


*Personalization of the first DCE board*
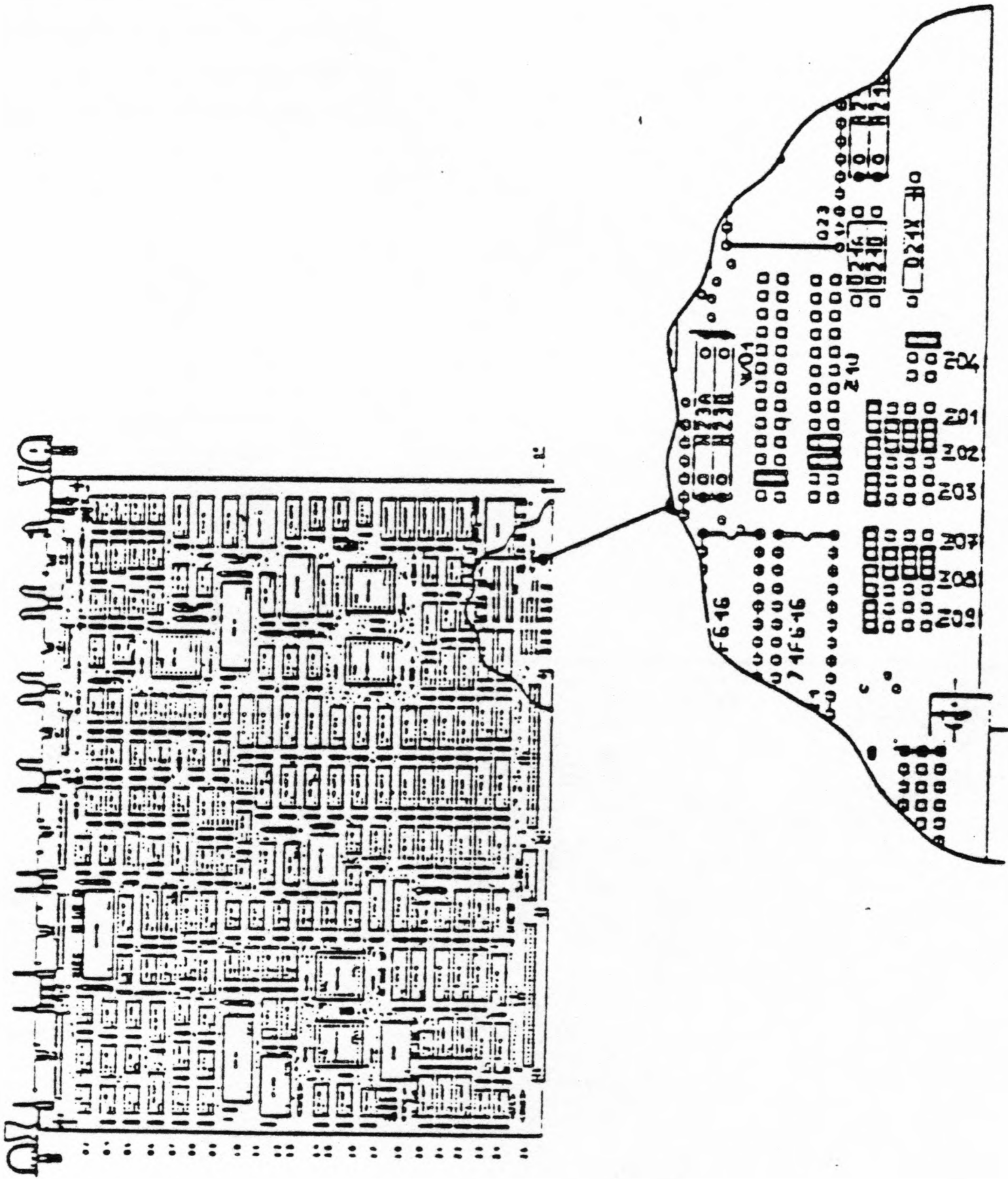
*Personalization of the second DCE board*

**4.** If the board to be replaced is an ESD board (XYLOGIC 712), locate the JA personalization pins and verify that:

- no jumper is installed for the first controller

- a jumper is set in position 4 for the second controller

JA

```
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
F E D C B A 9 8 7 6 5 4
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
```

\*
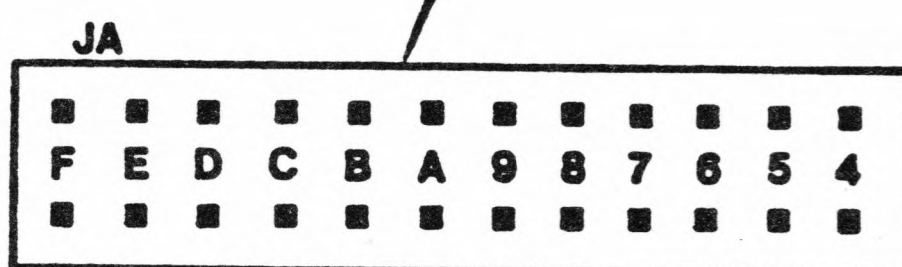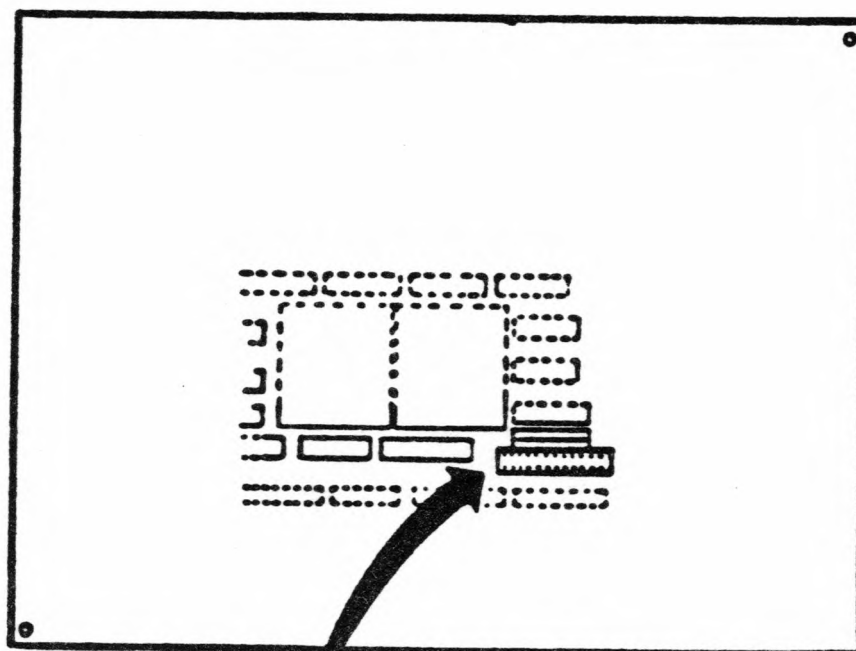
**THIS PAGE IS INTENTIONALLY LEFT BLANK**

5. Locate the position in which the board is to be installed. If present, remove the dummy board.

## Central Unit

| 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | MEM 3 | MEM 2 | MEM 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EX0 | DCS0 | VME | VME | SPX3 | SPX2 | SPX1 | SPX0 | SCX | CHX0 | CPX0 | SE2 | SE2 | SE2 |
| | o | | | o | o | o | o | | | | o | o | o |
| TER | DCE0 | SP1 | SP1 | LP03 | LP02 | LP01 | LP00 | | | | SM4 | SM4 | SM4 |
| | | o | o | | | | | | | | o | o | o |
| | | SP2 | SP2 | | | | | | | | SM8 | SM8 | SM8 |
| | | | | | | | | | | | o | o | o |
| | | | | | | | | | | | MF4 | MF4 | MF4 |
| | | | | | | | | | | | o | o | o |
| | | | | | | | | | | | MF8 | MF8 | MF8 |

## Expansion Unit

| 1 MEM | 2 MEM | 3 MEM | 1 | 2 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SE2 | SE2 | SE2 | CPX1 | CHX1 | SPX4 | SPX5 | SPX6 | SPX7 | VME | VME | DCS1 | |
| o | o | o | | | o | o | o | o | | | o | |
| SM4 | SM4 | SM4 | | | LP04 | LP05 | LP06 | LP07 | SP1 | SP1 | DCE1 | |
| o | o | o | | | | | | | o | o | | |
| SM8 | SM8 | SM8 | | | | | | | SP2 | SP2 | | |
| o | o | o | | | | | | | | | | |
| MF4 | MF4 | MF4 | | | | | | | | | | |
| o | o | o | | | | | | | | | | |
| MF8 | MF8 | MF8 | | | | | | | | | | |

**5.1** In case of an SP2 board it is necessary to set the appropriate jumpers according to the position in which the board is inserted.

With help of the figure locate the jumpers and set them according to the following table.

**main cabinet:**

| slot | S0 | S1 | S2 | S3 |
|------|-----|-----|-----|-----|
| 4 | off | off | off | on |
| 5 | off | off | off | on |
| 6 | off · | off | off | on |
| 7 | off | off | off | on |
| 8 | on | on | on | off |
| 9 | off | on | on | off |

**expansion cabinet:**

| slot | S0 | S1 | S2 | S3 |
|------|-----|-----|-----|-----|
| 4 | off | off | off | ·on |
| 5 | off | off | off | on |
| 6 | off | off | off | on |
| 7 | off | off | off | on |
| 8 | on | off | on | off |
| 9 | off | off | on | off |

```
                COMMON
                  |
S0       on  | •  •  • |  off
S1       on  | •  •  • |  off
S2       on  | •  •  • |  off
S3       on  | •  •  • |  off
MUST BE  on  | •  •  • |
X            | •  •  • |
```
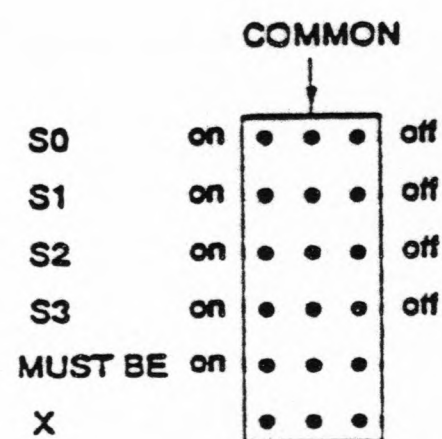
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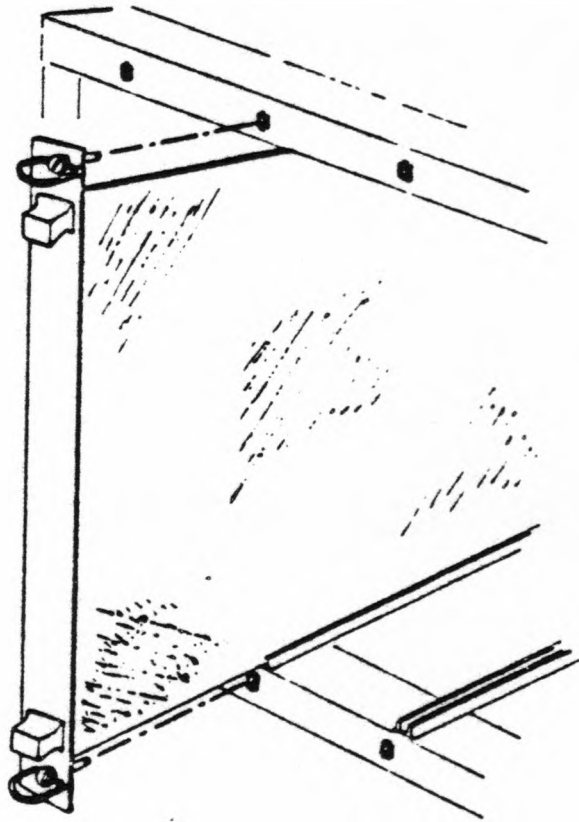
**6.** Insert the new board in the guides previously occupied by the old board. If present, remove the dummy board.

Fix the board to the system by turning the ring bolts in a clockwise direction.
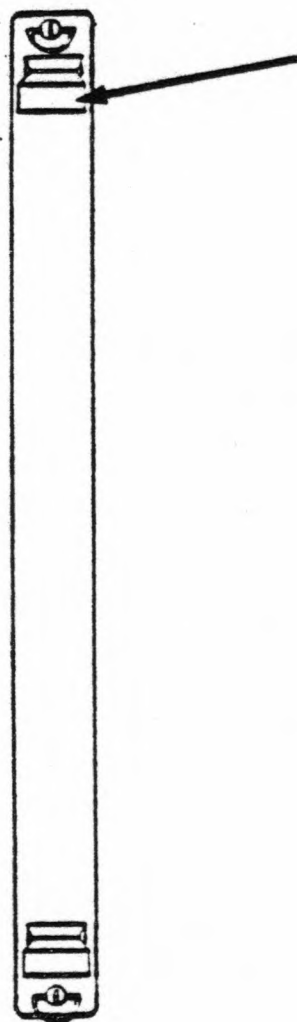
**7.** If necessary, identify the number that refers to the position of the board inside the system and attach a label with this number to the upper tab of the board.

1  MEM3  MEM2  MEM1
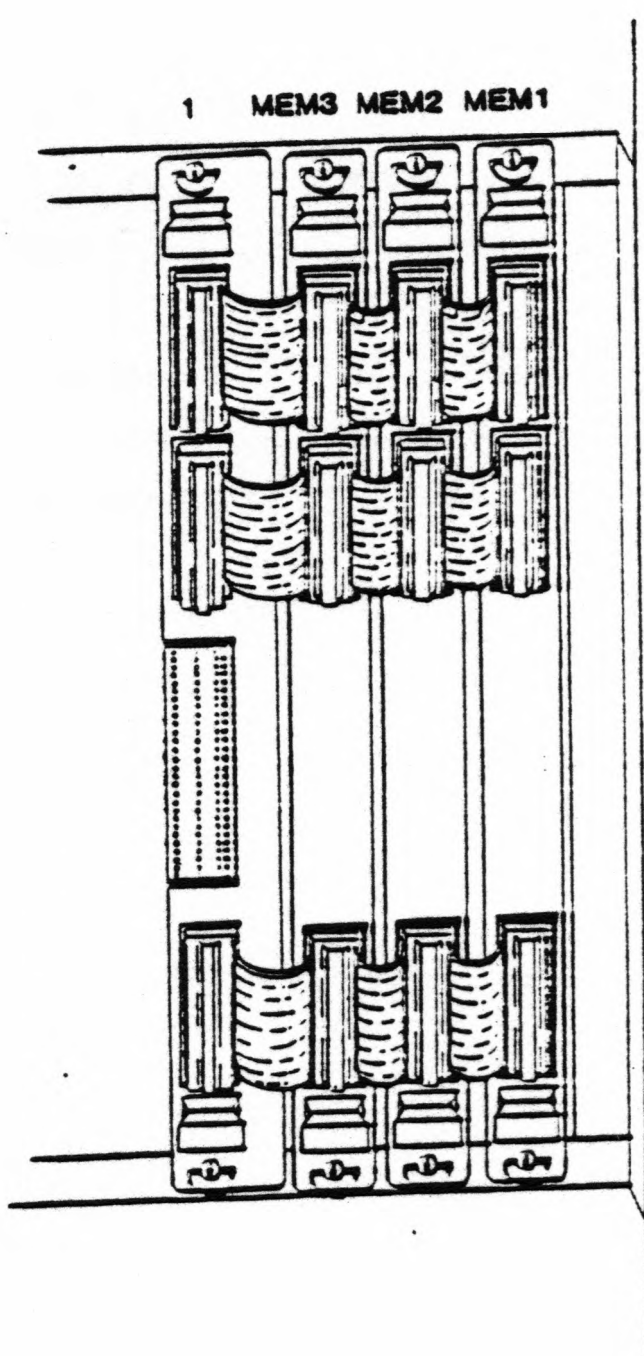
8. Connect the cables to the plugs on the board so that each plug with a given colour code corresponds to a socket with the same colour code.

9. If necessary, the three 7813959-001 cables should also be reconnected to the expansion boards or CPU, from which they were previously disconnected.
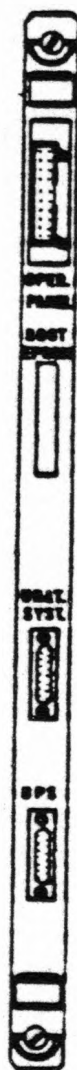
**10.** Connect the EPROM that wa previously removed, to the "BOOT EPROM" connector.

**NOTE:** This operation is not necessary for the SC1 board for the X20EF and X40EF systems.

# REPLACING A WORKSTATION

## Removal

Remove the communication line connector from the workstation connector.

## Reinstallation

Reattach the communication line connector. Re-personalize the workstation as described in the *"System Installation Guide"*.

# REPLACING A PRINTER

## Removal

Remove the communication line connector from the printer connector.

## Reinstallation

Reattach the communication line connector. Re-personalize the printer as described in the installation manual.

# Section IV

# UNIT RETURN

## PARTS RETURN

### USA-Distributor Market

*NOTE:*    The following regulation applies exclusively to the Distributor market in the USA.

In order to return a Customer Replaceable Unit (CRU), fill out the form HIS-3122 following the instructions listed on the form. Be sure to use the Honeywell Bull mailing label (HIS-3629) on each box. The HIS-3122 form and the HIS-3629 label are located in the packing carton for the system, together with the documentation. Additional labels and forms can be ordered from the National Distribution Center.

### Other Markets

Refer to the rules stipulated in the contract.

# Section V

# CALLING FOR HELP

1.  Before contacting the Customer Service Rapresentative take note of:

    •   Any messages which appear on the workstation.
    •   The configuration of the indicators, *ON* or *OFF*.
    •   The *STATUS* display on the operator panel, *ON* or *OFF*, blinking or not blinking.

    It is also necessary to take note of the system configuration, and to notify technical assistance, if the fault is intermittent.

2.  Refer to the rules stipulated in the contract.

    *NOTE:*   When dealing with the USA Market, read carefully the information contained overleaf.

# USA-DISTRIBUTOR MARKET: CALLING FOR HELP

*NOTE:*        The following regulation apply exclusively to the Distributor market in the USA.

If you need assistance, first identify your contract type and then simply dial the appropriate HELP telephone number listed on the next page.

## Contract Types

### STANDARD MAINTENANCE CONTRACT

When you have found that a unit is faulty, you call the HELP telephone number for your area. A Distributor Customer Service Engineer is available to assist you. If necessary, the engineer can replace the unit at your office.

### DISPATCH CONTRACT

You identify the faulty unit and remove it. You then report it to Honeywell Bull and a replacement unit is delivered. You can either install the replacement yourself or, for a fee, have a Distributor representative install the unit for you.

### WALK-IN/MAIL-IN CONTRACT

. You identify the faulty unit and remove it. You then transport or send the unit to Distributor. Distributor will repair or replace the unit and send it back to you. You can either install the replacement yourself or, for a fee, have a Distributor representative install the unit for you.

# HELP Telephone Numbers

| | |
|---|---|
| Georgia customers | (800)282-4350 |
| Atlanta area customers | (404)982-3066 |
| All other U.S. customers | (800)241-1634 |

Canadian customers:

| | |
|---|---|
| Within Toronto area | (416)298-7444 |
| Other areas-English | (800)268-4191 |
| Other areas-French | (800)268-4115 |

# Supplies/Additional Units

Refer to the National Distribution Center Catalog and refer to one of the following numbers:

| | |
|---|---|
| Massachusetts customers | (617)461-4246 |
| All other U.S. customers | (800)343-6665 |

Canadian customers:

| | |
|---|---|
| Within Toronto area | (416)298-4500 |
| Other areas | (800)268-5557 |

# Section VI

# COVER REMOVAL/REPLACEMENT

As shown in the figure, the central unit and the expansion unit are composed of:

- The main support frame

- An upper panel

- A front panel

- A rear panel.

To remove them, perform the following instructions. The instructions for removing the panels of the central unit are listed below. Perform the same instructions to remove the panels of the expansion unit.

## NOTE

*The system contains switches used to automatically interrupt the power supply to the system if any of the panels are removed. To prevent the system powering off unintentionally, the user is thus advised not to remove any of the panels while the system is powered on.*
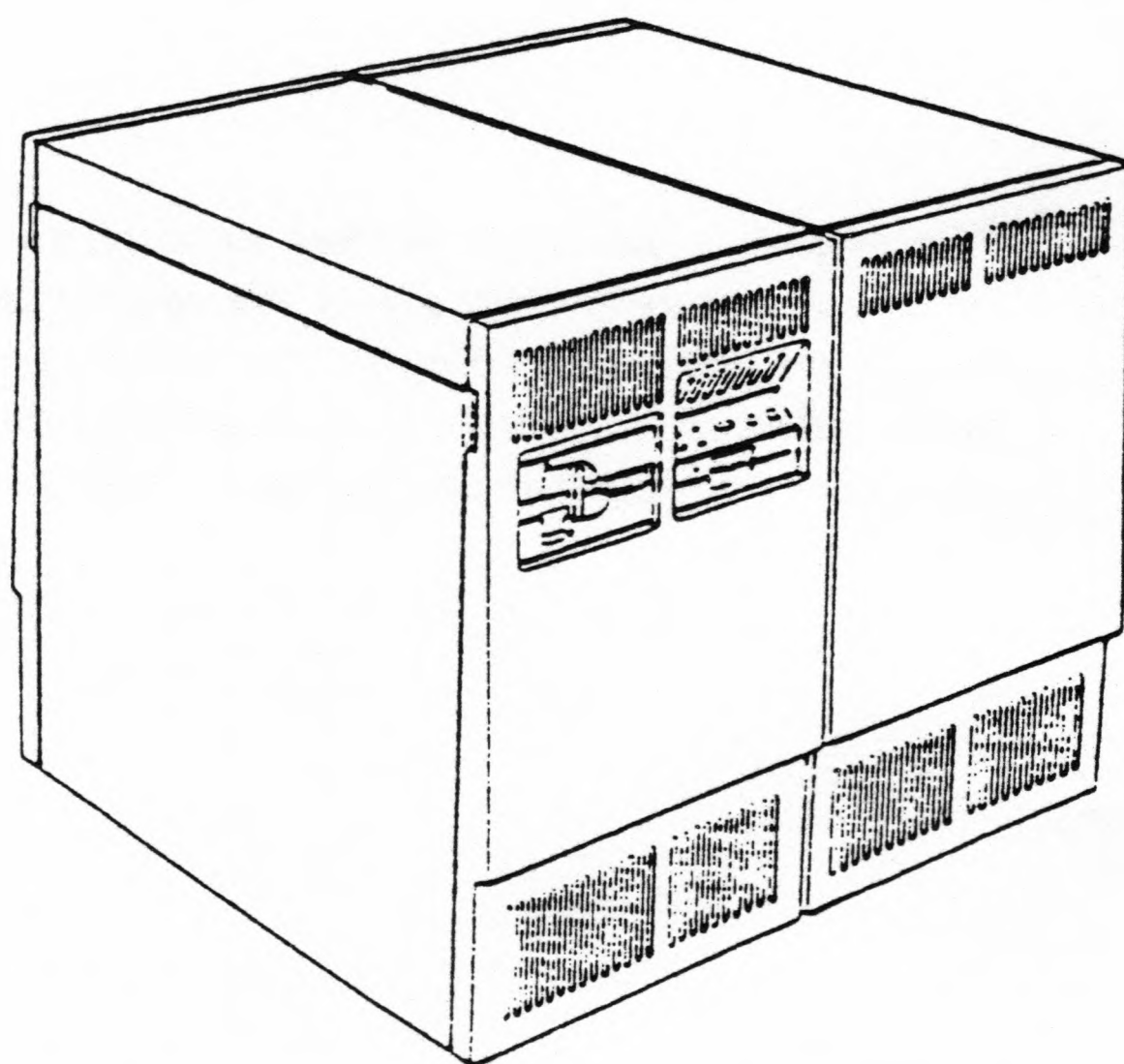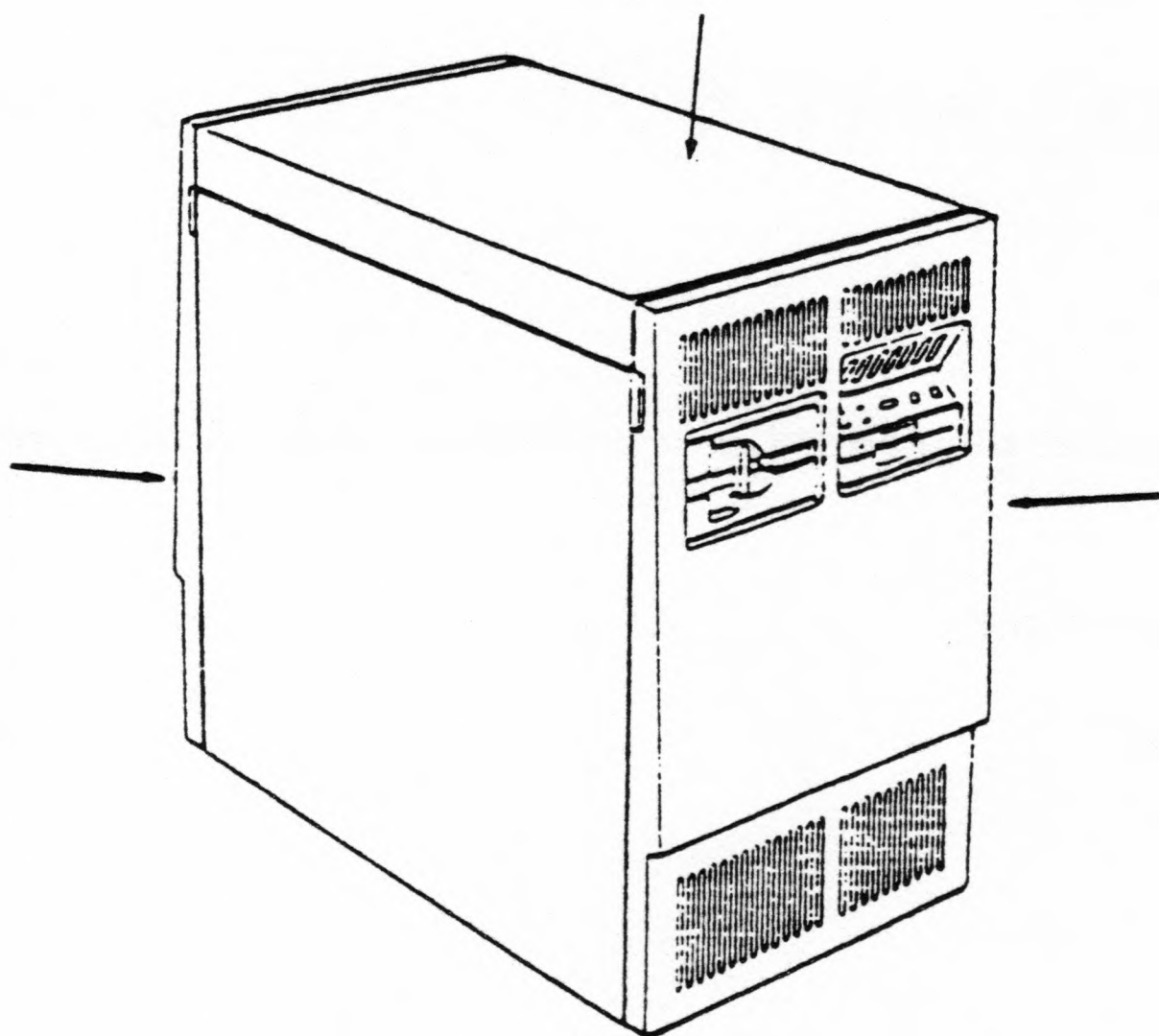
## Removing the Upper Panel
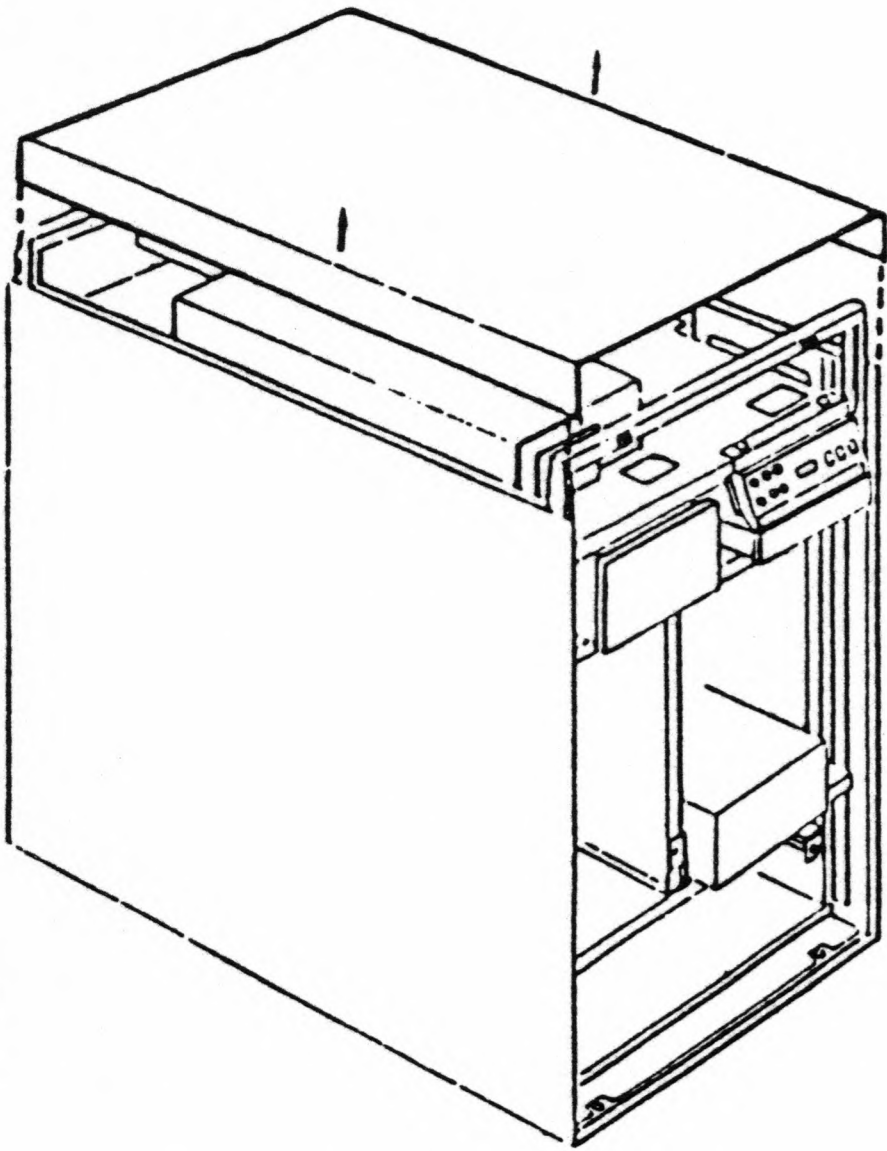
1. Grip the upper panel in the center as shown in the figure.

2. Lift up the panel.

# Removing the Front Panel
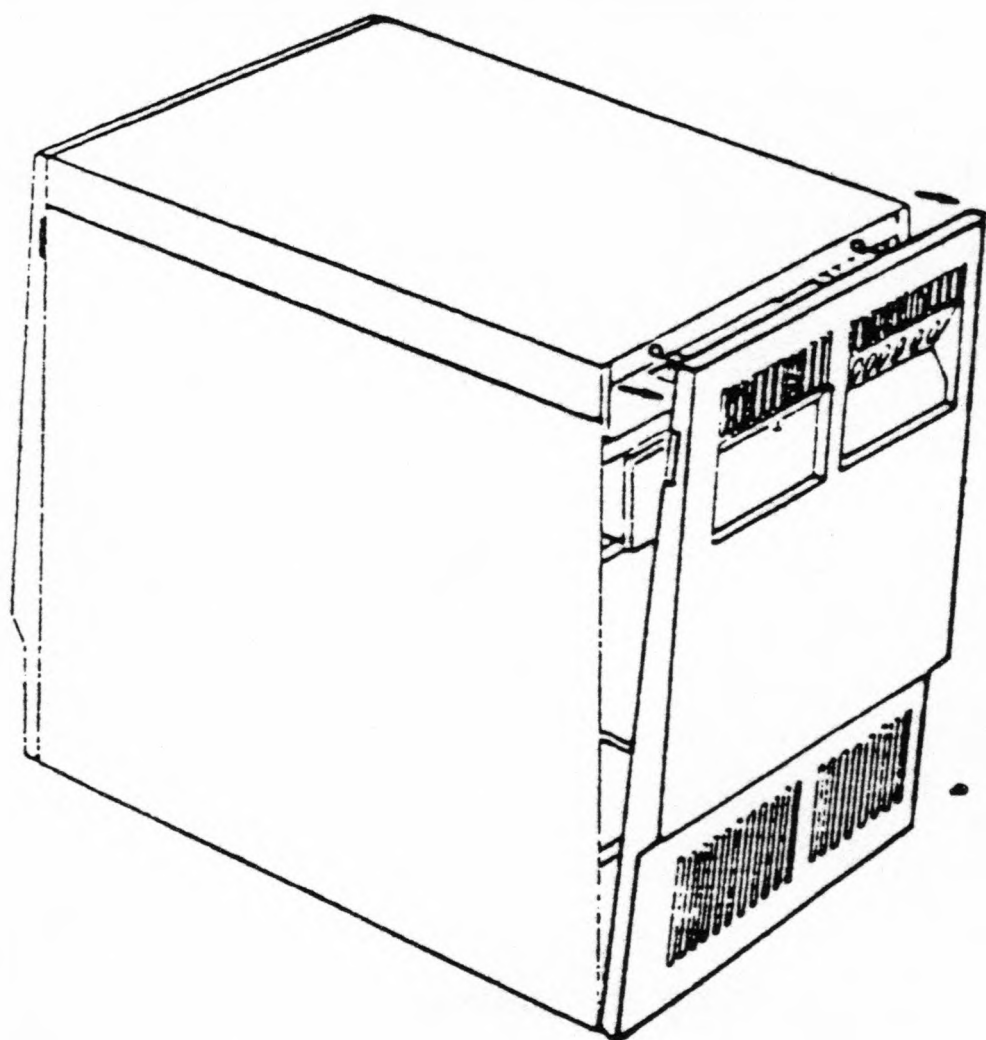


1. Identify the grooves in the sides of the front panel.

   Hold the panel by these grooves and remove it as show in the figure.
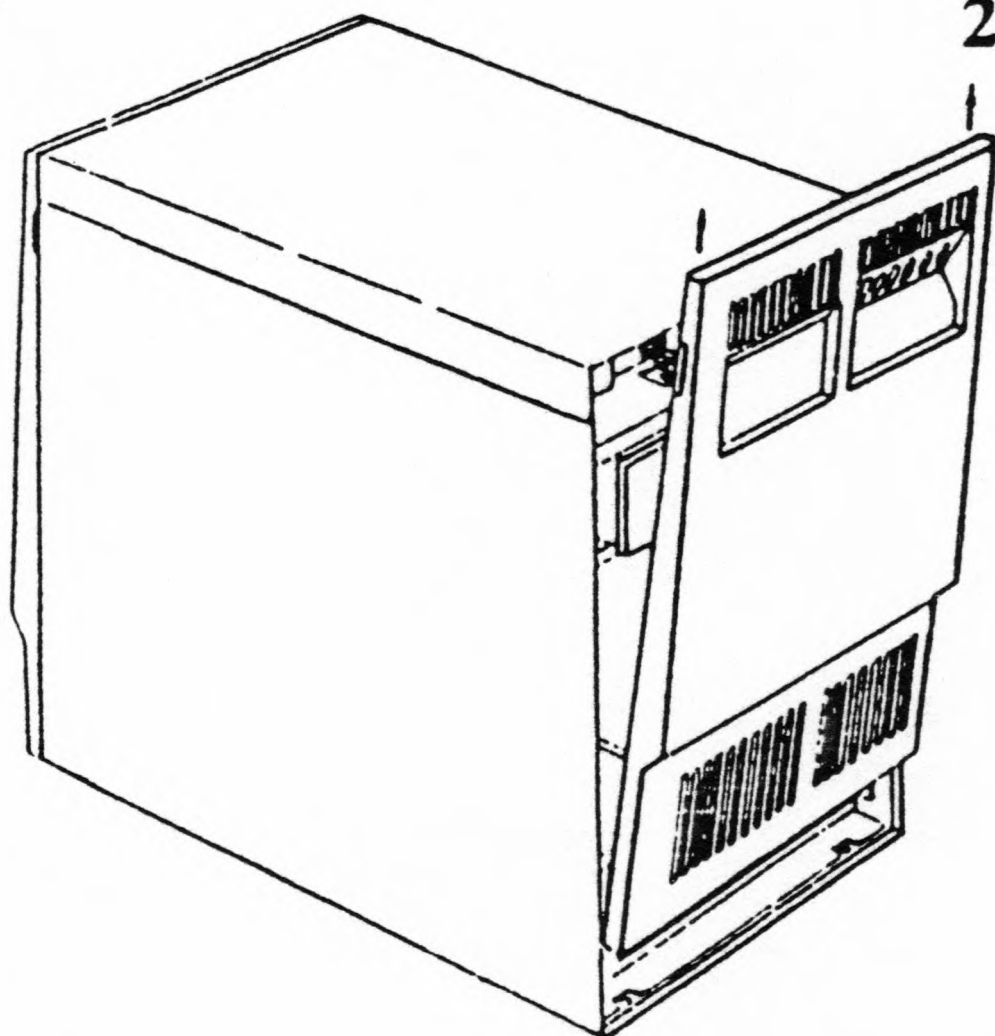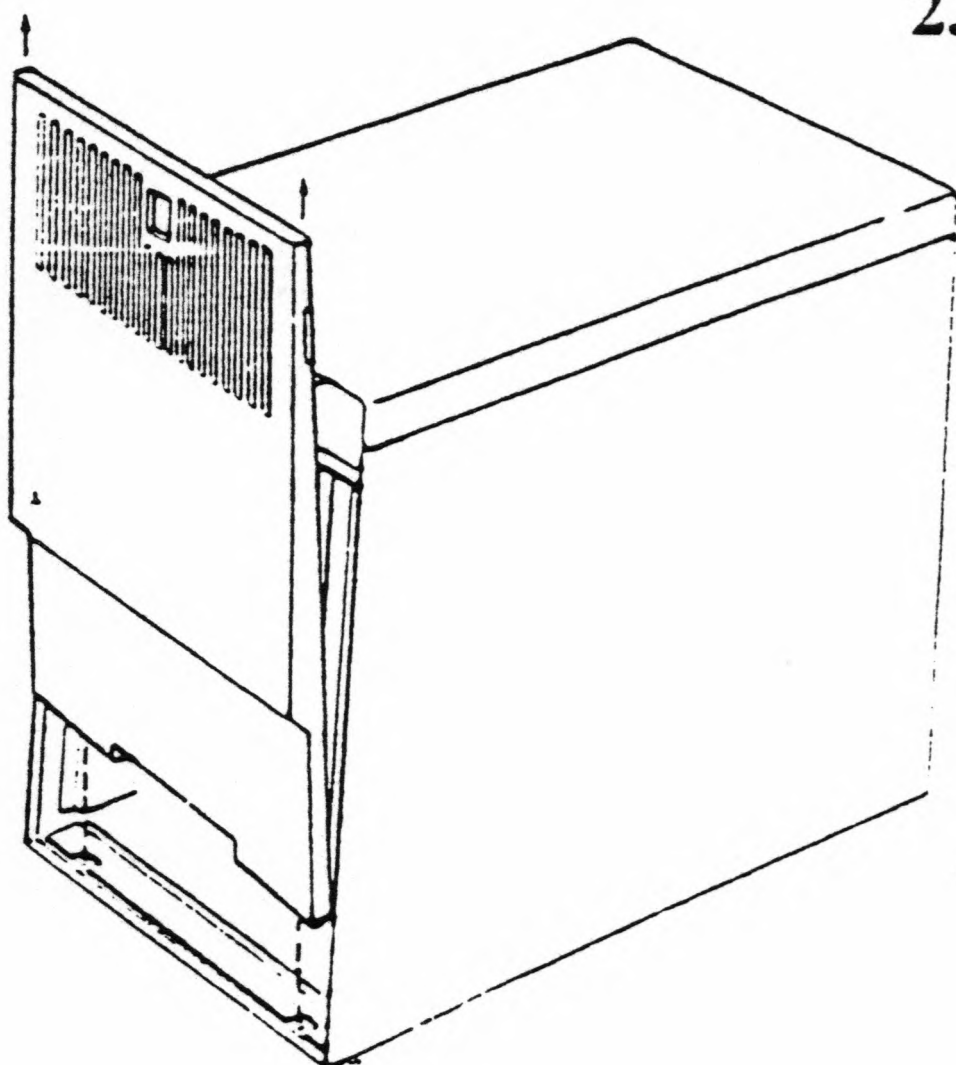


2. Lift up the panel.

# Removing the Rear Panel

1. Identify the grooves in the sides of the rear panel.
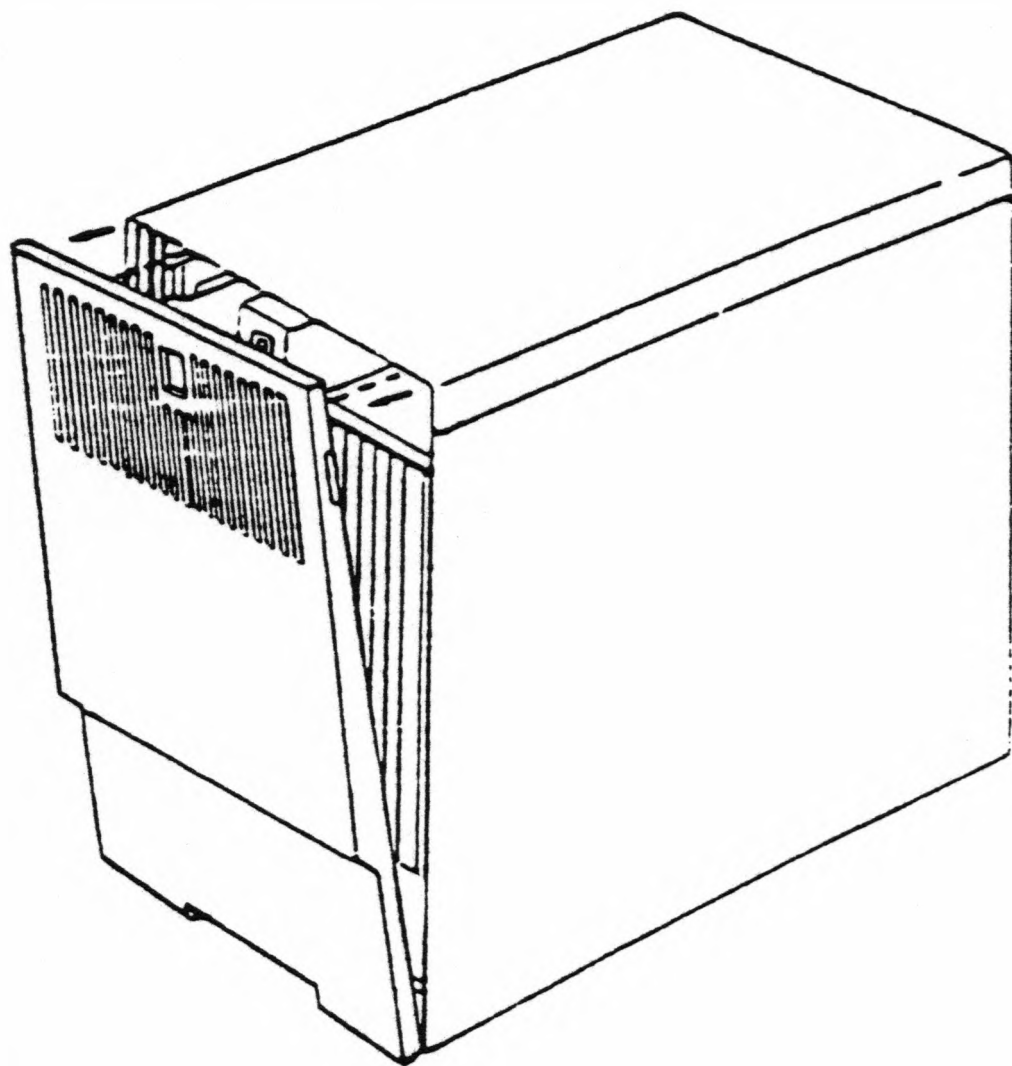
   Hold the panel by these grooves and remove it as shown in the figure.

2. Lift up the panel.

# USER'S REMARKS FORM

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| SYSTEM TESTING GUIDE |

ORDER NO. | HZ03-01

DATED | JULY 1988

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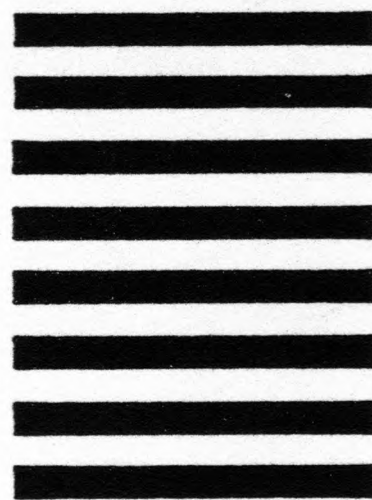
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